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JANUARY 1951



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# NUTRITION IN RELATION TO HEALTH AND DISEASE

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## IN THIS ISSUE

A STUDY of the volume of medical services received by a population composed of families in the original Eastern Health District of Baltimore is presented in the paper "Medical Care Among Males and Females at Specific Ages," by Jean Downes and Elizabeth H. Jackson. The study is of interest chiefly because it shows the extent to which a wage-earning population utilized medical service for illness in an area where the immediate neighborhood afforded abundant facilities for such service.

Medical services are shown for acute and chronic illness by type of visit, home or office, and by type of attendant. It was concluded that the ready availability of hospital outpatient clinics made it possible for some patients to receive medical care for illness who otherwise would probably have had none. This paper should be of special interest to those engaged in planning for adequate medical facilities on a community basis.

• • •

Public health activities related to mental health are relatively new but many public health administrators recognize the need and the potential great service that might be rendered in this field. Because of the interest in mental-health programs, an article on "Psychiatric Service in Relation to Public-Health Activities," by Dr. Jules V. Coleman, is reprinted from *Mental Hygiene* (July, 1950).

Dr. Coleman explores the creative possibilities for psychiatric participation in public health. His main thesis is that public health carries a large and important responsibility for mental health in terms of its own practice and its own functions. It deals with masses of people who have the usual run of psy-

chiatric problems. Better practice of public health may result if consideration is given to the principles of comprehensive medicine. Psychiatrists, acting as consultants and educators in a staff-oriented program, may make a significant contribution in this new epidemiological approach to the mental-hygiene problem.

This article should be of great interest to public health administrators as well as to specialists in the field of mental hygiene.

• • •

It is often stated that economic insecurity engendered by modern urban life is one of the factors in the long-time decline of the birth rate. Underlying much of the pronatalist legislation in other countries is the assumption that people will have more children if their feeling of economic security is strengthened. Nevertheless, very little in the way of inductive data on the relation of size of planned family to economic security has been available. Materials on this problem are presented in this issue as the eleventh in a series of reports on "Social and Psychological Factors Affecting Fertility." This report, prepared by Clyde V. Kiser and P. K. Whelpton, carries the subtitle "The Interrelation of Fertility, Fertility Planning, and Feeling of Economic Security."



## MEDICAL CARE AMONG MALES AND FEMALES AT SPECIFIC AGES—EASTERN HEALTH DISTRICT OF BALTIMORE, 1938–1943<sup>1</sup>

JEAN DOWNES AND ELIZABETH H. JACKSON

THE recent growth of group plans of payment for medical service has resulted in increasing interest in data on medical care received by the people in the United States. In the past two decades, medical care statistics have been provided from two sources. First, a special morbidity-medical care survey conducted by the Committee on the Costs of Medical Care during 1928–1931 (1, 2) and the National Health Survey made during 1935–1936 (3) have furnished data on care received by population groups paying for service largely under the fee-for-service system. Second, records of group payment plans have provided statistics of medical service received by persons prepaying for the service on the insurance principle (4, 5). The purpose of the present report is to present a study of the volume of medical service for illness received by males and females at specific ages in the Eastern Health District of Baltimore during the years 1938–1943. This analysis is of interest chiefly because it shows the extent to which a wage-earning population utilized medical service for illness in an area where the immediate neighborhood afforded facilities for the care of illness to an unusual degree.

The sample population observed for morbidity was considered as representative of the localities in Baltimore in which the wage-earning population lived; that is, it contained some families in relatively poor economic circumstances, wage-earning families in moderate circumstances, relatively few families in the professional class, and no families classed as wealthy.

Facilities for medical care of illness in the original Eastern Health District (Wards 6 and 7), the area from which the sample of families was drawn, included three hospitals within

<sup>1</sup> From the Milbank Memorial Fund. The study of illness in the Eastern Health District of Baltimore was conducted by the Public Health Service and the Milbank Memorial Fund.

the district and two adjacent to it. Each of these hospitals had an outpatient service where medical care was available at a nominal cost or free if the patient was considered eligible for free care by the social service department of the hospital. Baltimore also had a city hospital where free care was available to all residents considered eligible for such care. Approximately 150 private physicians practiced regularly within the district. However, during the period of the study (from three to five years) 619 different private physicians served the observed population.

#### DATA AND METHOD OF STUDY

For all cases of illness a record was made of volume of medical service received and whether rendered by a private physician, clinic, or hospital. The causes of illness as reported by the family informants were submitted to the attending physician for confirmation or correction. The volume of services rendered by the physicians; that is, the number of medical calls, was not submitted to the attending physician for confirmation or correction; these data are based upon information given by the family informant. The causes of illness for clinic attendance and hospital admissions were checked against the records of the clinic or hospital where the service was given. The date of each clinic visit was recorded from these records. Also, the total hospital days for the specific illness was obtained, but the hospital record did not include the number of physician visits while the patient was hospitalized.

Volume of medical service in this study includes the number of physician visits for illness reported by the family informants, the number of times a patient visited a clinic because of illness, and the number of hospital days recorded by the hospital which rendered the service.

The sample population was composed of persons in families observed for illness for two months or longer in thirty-four city blocks during the period June, 1938–May, 1943. Seventeen of these blocks were included in the study for a period of five

years and the other seventeen for a period of three years. The population includes 20,832 person-years; 10,292 males and 10,550 females. The age composition by sex was representative of white males and females in the original Eastern Health District (6, 7).

#### DESCRIPTION OF THE POPULATION

Characteristics of the sample population have been described in two previous papers (8, 9). The families were found to be a mobile group. For example, in the seventeen city blocks observed for five years there was a total of 1,270 families included in the morbidity study. Eight hundred and twenty-six of these families moved one or more times and 444 did not move (8). About three-fourths of the employed persons were in the clerical, sales, skilled, and semi-skilled occupation groups. The mean annual family income based on those that reported income (83 per cent of families in the third or middle study year) was \$1,718 (9).

#### VOLUME OF MEDICAL SERVICE

The annual rate of illness in the sample population was 1,500 per 1,000 person-years, 1,234 among males and 1,758 among

Table 1. Annual rate of medical services (calls) for all cases of illness by sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF CALL AND MEDICAL ATTENDANT	BOTH SEXES	MALE	FEMALE	FEMALE, EXCLUD- ING CALLS FOR FE- MALE GENITAL AND PUERPERAL DIAGNOSES
	RATE PER 1,000 POPULATION			
TOTAL CALLS	2,418.2	2,122.7	2,706.2	2,271.5
Office or Clinic	1,790.9	1,663.6	1,914.9	1,587.6
Home	627.3	459.1	791.3	683.9
General Practitioner	1,380.1	1,084.8	1,668.0	1,425.2
Specialist	167.3	172.1	162.7	120.7
Clinic	678.9	679.6	678.2	563.6
General Practitioner and Clinic	191.9	186.2	197.3	162.0

females. Medically attended cases constituted about one-third of the total, 592 per 1,000 person-years.

Table 1 shows the annual rate of medical service, 2,418 per 1,000 population, for all cases of illness.

Three-fourths of the calls were office or clinic calls and the remainder consisted of calls made at the home of the patient. About 60 per cent of the total calls for illness were made by a general practitioner; 25 per cent were visits to a clinic; and 8 per cent were visits to cases which had both private physician attendance and clinic attendance. If clinic service be considered as specialist service, about one-third of the total medical service was rendered by specialists. Only a relatively small proportion of total medical services, 7 per cent, were rendered by specialists outside of clinics.<sup>2</sup>

The rate of medical service was higher among females than

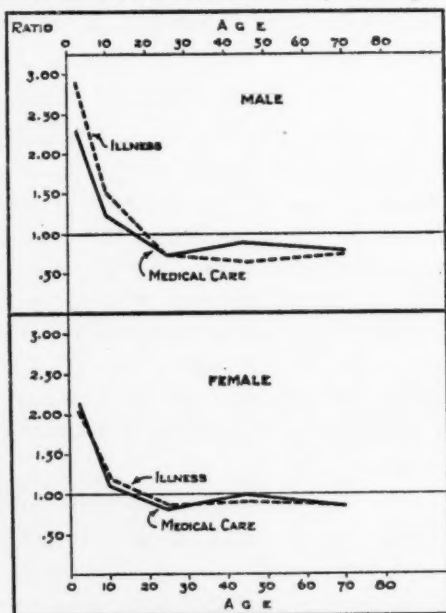


Fig. 1. Ratio of the rate of *acute* illness among males and females at each age to the rate at all ages compared with the ratio of the rate of medical services for acute illness at each age to the rate of such services at all ages (excluding female genital and puerperal diagnoses), Eastern Health District of Baltimore, June, 1938-May, 1943.

<sup>2</sup> Clinic attendance includes services rendered by specialists. In this analysis service indicated by the classification "specialist" means service for illness other than that given by a clinic. The clinics in the outpatient department of a hospital were classified according to their specialty and each was under the direction and supervision of a specialist. Consequently, it is proper to consider clinic service as specialist service.

"Specialists" includes physicians who according to the American Medical Association Directory, 1940, limited their practice to a specialty.

among males. When calls for female genital and puerperal diagnoses are excluded from the female rate, males had a slightly

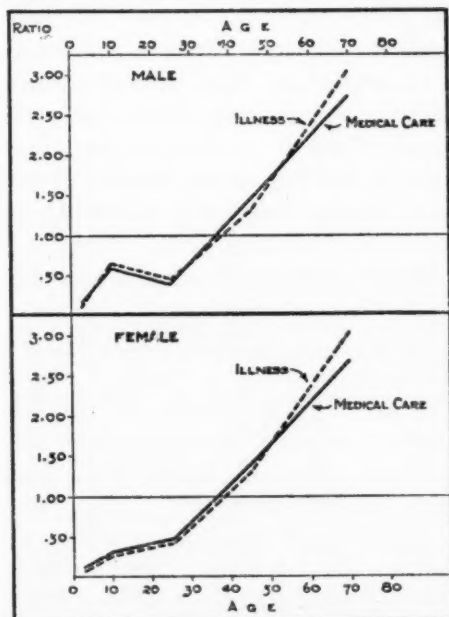


Fig. 2. Ratio of the rate of chronic illness among males and females at each age to the rate at all ages compared with the ratio of the rate of medical services for chronic illness at each age to the rate of such services at all ages (excluding female genital and puerperal diagnoses). Eastern Health District of Baltimore—June, 1938–May, 1943.

(6). The incidence of acute illness is relatively high at the youngest ages and declines as age increases. The prevalence of chronic illness, on the other hand, is relatively low at the youngest ages, the rate increases as age increases, and reaches its peak in old age.

Figure 1 shows for each sex the ratio of the rate of acute illness at each age to the total rate at all ages compared with the ratio of the rate for medical services for acute illness at each age to the total rate for all ages. Figure 2 shows the same data for

higher rate of office or clinic calls compared with that among females. On the other hand, the rate of home calls for females was 49 per cent above the rate for males. When attendant is considered, the excess of general practitioner calls for females compared with males was 31 per cent. Males exceeded the females in the rate of calls to clinics or specialist.

*Medical Service by Age and Sex.* It has been shown that the incidence of acute illness and the prevalence of chronic illness show marked differences at specific ages

chronic illness. It is evident that medical service for each of the two types of illness has the same relationship by age to its mean as does illness of that type.

Acute illness includes minor respiratory diseases and pneumonia, digestive diseases, diseases of the skin, acute communicable diseases, female genital diseases, pregnancy and complications of pregnancy, diseases of the ear, and of the teeth and gums, acute attacks of asthma and hay fever, diseases of the organs of vision, accidental injuries, and other miscellaneous causes.

Chronic illness includes heart disease, hypertensive vascular

Table 2. Annual rate per 1,000 population of medical services (home, office, and clinic calls) for cases of *acute* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF CALL	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	1,533.8	2,977.9	1,589.4	1,454.7	1,423.5	1,119.7
Office or Clinic	1,090.5	1,812.7	1,034.4	1,124.9	1,073.5	707.5
Home	443.3	1,165.2	555.0	329.8	350.0	412.2
MALE						
ALL CALLS	1,357.8	3,101.0	1,690.3	1,036.4	1,225.0	1,076.5
Office or Clinic	1,016.2	1,860.6	1,173.4	857.8	1,015.8	749.0
Home	341.6	1,240.4	516.9	178.6	209.2	327.5
FEMALE						
ALL CALLS	1,705.3	2,850.5	1,480.5	1,865.2	1,619.7	1,154.2
Office or Clinic	1,162.9	1,763.2	884.5	1,387.1	1,130.6	674.3
Home	542.4	1,087.3	596.0	478.1	489.1	479.9
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	1,331.8	2,850.5	1,467.7	1,052.5	1,328.7	1,142.1
Office or Clinic	893.6	1,763.2	871.7	803.4	917.2	670.5
Home	438.2	1,087.3	596.0	249.1	411.5	471.6



disease, arthritis, tuberculosis, diabetes, chronic nephritis, rheumatic fever, varicose veins, chronic gallbladder disease, malignant neoplasm, peptic ulcer, toxic goiter, epilepsy, mental deficiency, psychoses and psychoneuroses, syphilis, and other important but relatively rare chronic conditions. Those of a less severe nature included chronic sinusitis, lumbago, neuritis, neuralgia, chronic headache, and chronic indigestion. (See Appendix II for a more detailed list.)

*Acute Illness.* Table 2 shows the annual rate of medical services for *acute* illness by age for each sex. The services are classified according to "office or clinic calls" and "home calls." The rate of home calls was highest at the young ages and for persons 55 and older. Office or clinic calls were relatively frequent at ages under 5, 1.8 per person per year, and declined to less than one call per person after age 55.

Home calls constituted 29 per cent of all calls for *acute* illness. In the oldest age group, 55+, 37 per cent of the total were home calls. Females utilized physician home calls more than did males, especially at the older ages. For example, at ages 55+ among males, home calls formed 30 per cent of the total compared with 42 per cent among females at the same ages.

Table 3 shows the rate of medical calls for *acute* illness classified according to type of attendant. The important point brought out by this table is that, regardless of age or sex, the major volume of medical service for *acute* illness was rendered by the general practitioner. Calls by general practitioners included from 48 to 61 per cent among males at specific ages and from 59 to 69 per cent of the total among females.

Before consideration of medical care for chronic disease, it is important to point out and stress the fact that only a very small proportion of these conditions can be considered as physical defects in the usual sense of the term. In a previous analysis the rate of crippling conditions, all of which could be considered as defects, was only 3.8 per 1,000 population for both sexes combined; that is, about 1 per cent of the total chronic disease rate (7). If varicose veins and hernia be considered as defects, they

TYPE OF ATTENDANT	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	1,533.8	2,977.9	1,589.4	1,454.7	1,423.5	1,119.7
General Practitioner	913.7	1,925.9	858.1	824.9	889.0	713.2
Specialist	107.1	239.9	63.3	122.4	103.3	53.1
Clinic	387.6	641.7	541.5	388.9	280.7	286.5
General Practitioner and Clinic	125.4	170.4	126.5	118.5	150.5	66.9
MALE						
ALL CALLS	1,357.8	3,101.0	1,690.3	1,036.4	1,225.0	1,076.5
General Practitioner	756.9	1,896.4	815.3	537.0	738.2	660.6
Specialist	108.2	305.6	52.0	100.5	117.4	62.9
Clinic	372.1	716.1	657.8	316.7	230.6	259.0
General Practitioner and Clinic	120.6	182.9	165.2	82.2	138.8	94.0
FEMALE						
ALL CALLS	1,705.3	2,850.5	1,480.5	1,865.2	1,619.7	1,154.2
General Practitioner	1,066.5	1,956.3	904.3	1,107.4	1,038.1	755.3
Specialist	106.1	172.0	75.3	143.8	89.4	45.2
Clinic	402.7	564.8	416.0	459.8	330.1	308.4
General Practitioner and Clinic	130.0	157.4	84.9	154.2	162.1	45.3
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	1,331.8	2,850.5	1,467.7	1,052.5	1,328.7	1,142.1
General Practitioner	847.8	1,956.3	894.1	640.7	860.1	743.1
Specialist	77.9	172.0	75.3	77.2	73.4	45.3
Clinic	305.2	564.8	413.5	248.9	250.4	308.4
General Practitioner and Clinic	100.9	157.4	84.8	85.7	144.8	45.3

Table 3. Annual rate per 1,000 population of medical services classified by type of attendant for cases of *acute* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

add only about 15 cases per 1,000 to the total rate (238.3 per 1,000 population) from chronic disease. Chronic disease as



considered in this study includes mainly illnesses which are progressive in their development and most of which are of a serious nature in that they may involve both disability and discomfort to the patient.

*Chronic Illness.* Chronic illness for each sex constituted only about 16 per cent of all illness in terms of cases but received slightly more than one-third of all medical calls and was the cause of 24 to 36 per cent of all hospital admissions (7). Table 4 shows the distribution of calls by age classified according to office or clinic and home calls. The rate of home calls for

Table 4. Annual rate per 1,000 population of medical services (home, office, and clinic calls) for cases of *chronic* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF CALL	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
	BOTH SEXES					
ALL CALLS	884.4	120.9	369.4	405.1	1,272.6	2,373.9
Office or Clinic	700.4	95.6	339.3	373.3	1,114.3	1,471.3
Home	184.0	25.3	30.1	31.8	158.3	902.6
	MALE					
ALL CALLS	764.9	131.7	441.7	320.8	1,120.2	2,098.0
Office or Clinic	647.4	117.6	413.9	309.7	1,037.5	1,402.4
Home	117.5	14.1	27.8	11.1	82.7	695.6
	FEMALE					
ALL CALLS	1,000.9	109.8	291.6	487.9	1,423.3	2,594.6
Office or Clinic	752.0	72.8	259.1	435.7	1,190.2	1,526.4
Home	248.9	37.0	32.5	52.2	233.1	1,068.2
	FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)					
ALL CALLS	939.7	109.8	291.6	422.1	1,319.7	2,532.2
Office or Clinic	694.0	72.8	259.1	371.7	1,095.6	1,464.0
Home	245.7	37.0	32.5	50.4	224.1	1,068.2

TYPE OF ATTENDANT	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	884.4	120.9	369.5	405.1	1,272.6	2,373.9
General Practitioner	466.4	31.2	62.6	190.5	657.3	1,511.7
Specialist	60.2	30.6	16.9	37.9	91.8	121.1
Clinic	291.3	24.7	266.0	153.4	402.6	604.4
General Practitioner and Clinic	66.5	34.4	24.0	23.3	120.9	136.7
MALE						
ALL CALLS	764.9	131.7	441.7	320.8	1,120.2	2,098.0
General Practitioner	327.9	21.7	47.4	119.4	502.2	1,114.7
Specialist	63.9	60.1	23.1	37.6	115.0	82.9
Clinic	307.5	24.3	354.0	138.9	359.3	801.6
General Practitioner and Clinic	65.6	25.6	17.2	24.9	143.7	98.8
FEMALE						
ALL CALLS	1,000.9	109.8	291.6	487.9	1,423.3	2,594.6
General Practitioner	601.5	41.0	79.1	260.3	810.6	1,829.1
Specialist	56.6	0.0	10.2	38.2	68.9	151.7
Clinic	275.5	25.1	171.0	167.7	445.4	446.8
General Practitioner and Clinic	67.3	43.7	31.3	21.7	98.4	167.0
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	939.7	109.8	291.6	422.1	1,319.7	2,532.2
General Practitioner	577.4	41.0	79.1	230.6	776.3	1,801.1
Specialist	42.8	0.0	10.2	22.3	44.3	142.8
Clinic	258.4	25.1	171.0	154.3	411.5	426.4
General Practitioner and Clinic	61.1	43.7	31.3	14.9	87.6	161.9

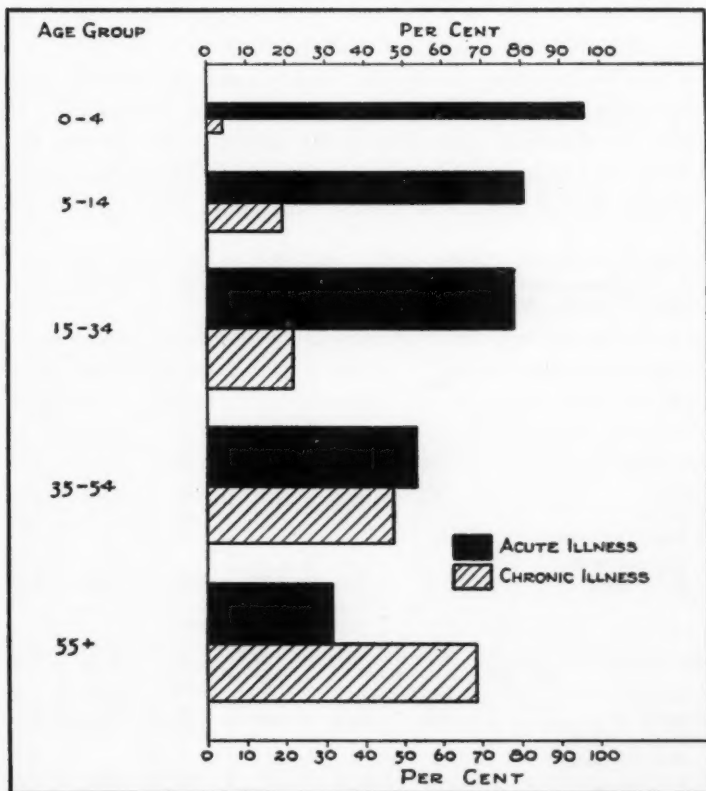
Table 5. Annual rate per 1,000 population of medical services classified by type of attendant for cases of *chronic* illness, by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

*chronic* illness, 184 per 1,000 population, was slightly less than

half the rate (443) for *acute* illness. Females had a higher rate of home visits than did males. The rates for home visits to each sex were relatively low until age 55 and over. A marked increase in the rate of office and clinic visits was noted after age 35, the same ages when both prevalence and incidence of chronic disease increased to a marked degree.

Table 5 shows the rate of medical services for *chronic* disease classified according to type of medical attendant. It is noteworthy that the private physician furnished most of the medical

Fig. 3. Per cent of the total medical services at each age that were for acute and chronic illness, Eastern Health District of Baltimore, June, 1938-May, 1943.



care for chronic disease in the population after age 35. In the younger ages the major part of medical care was furnished by the clinics.

Figure 3 contrasts the volume of medical service for acute and chronic illness at different ages. Ninety-six per cent of the medical calls among children under 5 years of age were because of acute illness. At ages 5 to 34, acute illness accounted for about 80 per cent of the total service for illness. At ages 35 to 54, medical calls were about evenly divided between acute and chronic illness. After age 55, medical service for chronic illness formed a much higher proportion of the total for all illness than did the service for acute illness; the proportions in this age group were 68 and 32 per cent, respectively.

Table 6 shows the average number of medical calls per medically attended case of illness by age and sex of the patient. Illnesses are classified according to the nature of the illness; that is, acute and chronic. The mean number of calls per acute case of illness ranged from 2 at ages 0-4 to about 4 at ages 35 and

Table 6. Number of medical calls per medically attended case of acute and chronic illness, classified by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

CLASSIFICATION	ALL AGES	0-4	5-14	15-34	35-54	55 +
ACUTE ILLNESS						
BOTH SEXES	3.13	2.14	2.64	3.54	3.87	3.47
Male	3.06	2.14	2.65	3.29	4.39	3.44
Female	3.20	2.14	2.62	3.69	3.55	3.47
Female (Excluding Female Genital Conditions)	2.79	2.14	2.61	2.73	3.27	3.50
CHRONIC ILLNESS						
BOTH SEXES	8.60	9.30	7.76	8.13	9.68	7.98
Male	9.46	8.58	8.38	8.73	11.17	8.56
Female	8.05	10.38	6.92	7.79	8.76	7.65
Female (Excluding Female Genital Conditions)	8.05	10.38	6.92	7.54	8.96	7.63

over. There were no important differences between the sexes. On the other hand, chronic illness had considerably more visits per case than did acute illness. For example, for all ages there were 8.6 visits per case. Chronic illness is characterized by a long duration compared with acute illness and duration of illness influences the amount of medical care received per case.

A portrayal of medical care for illness is incomplete without a consideration of days spent in the hospital because of illness. Table 7 shows the annual rate per 1,000 population of hospital

Table 7. Annual rate per 1,000 population of hospital days for acute and chronic illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF ILLNESS	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL ILLNESS	2,595.1	879.1	2,566.6	2,764.5	2,046.7	4,233.7
Acute	532.1	823.8	435.2	617.4	470.6	385.3
Chronic	2,063.0	55.3	2,131.4	2,147.1	1,576.1	3,848.4
MALE						
ALL ILLNESS	2,915.6	1,016.6	3,886.3	2,426.2	2,938.0	4,191.2
Acute	404.3	951.4	397.9	278.1	435.0	375.3
Chronic	2,511.3	65.2	3,488.4	2,148.1	2,503.0	3,815.9
FEMALE						
ALL ILLNESS	2,282.8	736.8	1,144.2	3,096.6	1,165.9	4,267.7
Acute	656.6	691.8	475.4	950.4	505.7	393.3
Chronic	1,626.2	45.0	668.8	2,146.2	660.2	3,874.4
FEMALE (EXCLUDING DAYS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL ILLNESS	1,992.0	736.8	1,139.1	2,451.0	961.2	4,245.4
Acute	365.9	691.8	470.3	304.8	301.0	370.9
Chronic	1,626.1	45.0	668.8	2,146.2	660.2	3,874.5

days for acute and chronic illness by age and sex. For both sexes at all ages, about 79 per cent of the hospital days were because of chronic illness. This relationship was true of both males and females. At only one age did the rate of hospital days for acute illness exceed that for chronic illness; namely, at ages 0-4. The rate of hospital days was higher among males than among females at every age except ages 15-34. At ages 55+ the rates were similar for both sexes. The importance of chronic disease in the utilization of hospital facilities in terms of days is apparent; long-duration diseases with long periods of hospitalization have a marked effect upon the rates.<sup>3</sup>

The study of illness in the Eastern Health District of Baltimore did not include data concerning costs of medical care received by the surveyed population. It is evident, however, that much of the cost of a considerable portion of medical services received (visits) was borne by the community. About 30 per cent of the medical services for illness were furnished by outpatient hospital clinics where services were at a nominal cost; that is, patient fees did not cover the entire cost of service.

#### DISCUSSION

The data on volume of medical care for illness in the surveyed population in the Eastern Health District of Baltimore are not strictly comparable with data from any other morbidity study. In comparison with other illness studies, the population was drawn from a particular area of only one large city and was not representative of all income classes in that city. It has been shown that the level of income of the family influences the amount of medical care received for illness. In the Committee on the Costs of Medical Care study it was noted that families with relatively high income had more illness and more medical care than did low-income families (1).<sup>4</sup> The mean annual in-

<sup>3</sup> Hospital days for cases of chronic disease include patient days spent in tuberculosis sanatoria and in hospitals which care for the mentally ill.

<sup>4</sup> The population in the C.C.M.C. study was somewhat weighted with families with high income when compared with the distribution of the population of the United States by income class.

come of the families with known income in the Eastern Health District sample was \$1,718.

However, it is desirable to obtain some sort of indication as to the possible influence of the availability of facilities for medical care upon the volume of services received by the sample population in Baltimore. A comparison of the total volume of services in the sample population with data from the C.C.M.C. study shows a striking similarity between the two.

The data are as follows:

*All M.D. Attended Cases Per 1,000 Population:*

C.C.M.C. Study	634
Eastern Health District	592

*Annual Calls Per 1,000 Population:*

C.C.M.C. Study	2,543
Eastern Health District	2,418

*Mean Calls Per Attended Case:*

C.C.M.C. Study	4.0
Eastern Health District	4.1

On the other hand, when the annual rate of medical calls is subdivided by attendant, marked internal differences between the two studies are evident.

The data are as follows:

*Calls by Private Physician (Per 1,000 Population):*

C.C.M.C. Study	2,416
Eastern Health District	1,739

*Clinic Calls (Per 1,000 Population):*

C.C.M.C. Study	127
Eastern Health District	679

Without doubt the level of the rate of clinic calls in the Eastern Health District was affected by the availability of such facilities. Clinic calls were five times as frequent in that population compared with such calls noted in the C.C.M.C. study. Had clinic facilities in the Eastern Health District been less abundant, some patients who attended clinics might have had the care of a private physician. However, it is safe



to conclude that the volume of medical care for illness in this district was considerably affected by the presence of hospital clinics in the neighborhood. Patients received medical care for illness who under other conditions would probably have had none.

#### SUMMARY

This report deals with the volume of medical services among males and females at specific ages in a sample population in the Eastern Health District of Baltimore. It is the fourth in a series of papers based on the whole study (6, 7, 9).<sup>5</sup>

The annual rate of medical calls for illness was 2,418 per 1,000 population; three-fourths of the calls were office or clinic calls and the remainder were home calls. About 68 per cent of the total calls were made by a general practitioner; 32 per cent were classed as specialist calls.

Office or clinic calls for acute illness were relatively frequent at ages under 5, 1.8 per person per year, and declined to less than 1 call per person after age 55.

Regardless of age or sex, the major volume of medical service for acute illness was rendered by the general practitioner. Calls by general practitioners included from 48 to 61 per cent of the total among males at specific ages and from 59 to 69 per cent among females.

The general practitioner furnished most of the medical service for chronic disease in the population after age 35. Among those younger the major part of medical care was furnished by the clinics.

Medical calls per attended case were 3 for acute illness and 9 for chronic illness. The difference between the two was attributed to difference in duration of acute and chronic illness.

About 79 per cent of the total hospital days were due to chronic illness. This was true for each sex.

Volume of medical care in the sample population of the Eastern Health District was compared with data from the Com-

<sup>5</sup> Three of the papers exclude 1 of the 35 city blocks surveyed which was dropped from the study because of excessive moving of families residing there.



mittee on the Costs of Medical Care study. The rate of clinic visits in the sample population was five times the rate of such visits in the C.C.M.C. population. It was concluded that the population drawn from the Eastern Health District because of easily available medical facilities (hospital outpatient clinics) had more medical care for illness than would have been the case had such facilities been lacking.

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### APPENDIX I

Appendix Table 1. Number of medical services (home, office, and clinic calls) for cases of *acute* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF CALL	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	31,953	4,580	5,175	10,865	8,171	3,162
Office or Clinic	22,718	2,788	3,368	8,402	6,162	1,998
Home	9,235	1,792	1,807	2,463	2,009	1,164
MALE						
ALL CALLS	13,961	2,425	2,855	3,835	3,495	1,351
Office or Clinic	10,449	1,455	1,982	3,174	2,898	940
Home	3,512	970	873	661	597	411
FEMALE						
ALL CALLS	17,992	2,155	2,320	7,030	4,676	1,811
Office or Clinic	12,269	1,333	1,386	5,228	3,264	1,058
Home	5,723	822	934	1,802	1,412	753
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	14,050	2,155	2,300	3,967	3,836	1,792
Office or Clinic	9,427	1,333	1,366	3,028	2,648	1,052
Home	4,623	822	934	939	1,188	740

TYPE OF ATTENDANT	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	31,953	4,580	5,175	10,865	8,171	3,162
General Practitioner	19,034	2,962	2,794	6,161	5,103	2,014
Specialist	2,232	369	206	914	593	150
Clinic	8,075	987	1,763	2,905	1,611	809
General Practitioner and Clinic	2,612	262	412	885	864	189
MALE						
ALL CALLS	13,961	2,425	2,855	3,835	3,495	1,351
General Practitioner	7,782	1,483	1,377	1,987	2,106	829
Specialist	1,113	239	88	372	335	79
Clinic	3,826	560	1,111	1,172	658	325
General Practitioner and Clinic	1,240	143	279	304	396	118
FEMALE						
ALL CALLS	17,992	2,155	2,320	7,030	4,676	1,811
General Practitioner	11,252	1,479	1,417	4,174	2,997	1,185
Specialist	1,119	130	118	542	258	71
Clinic	4,249	427	652	1,733	953	484
General Practitioner and Clinic	1,372	119	133	581	468	71
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	14,050	2,155	2,300	3,967	3,836	1,792
General Practitioner	8,944	1,479	1,401	2,415	2,483	1,166
Specialist	822	130	118	291	212	71
Clinic	3,220	427	648	938	723	484
General Practitioner and Clinic	1,064	119	133	323	418	71

Appendix Table 2. Number of medical services classified by type of attendant for cases of acute illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF CALL	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	18,424	186	1,203	3,026	7,305	6,704
Office or Clinic	14,591	147	1,105	2,788	6,396	4,155
Home	3,833	39	98	238	909	2,549
MALE						
ALL CALLS	7,865	103	746	1,187	3,196	2,633
Office or Clinic	6,657	92	699	1,146	2,960	1,760
Home	1,208	11	47	41	236	873
FEMALE						
ALL CALLS	10,559	83	457	1,839	4,109	4,071
Office or Clinic	7,934	55	406	1,642	3,436	2,395
Home	2,625	28	51	197	673	1,676
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	9,914	83	457	1,591	3,810	3,973
Office or Clinic	7,322	55	406	1,401	3,163	2,297
Home	2,592	28	51	190	647	1,676

Appendix Table 3. Number of medical services (home, office, and clinic calls) for cases of *chronic* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF ATTENDANT	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL CALLS	18,424	186	1,203	3,026	7,305	6,704
General Practitioner	9,717	48	204	1,423	3,773	4,269
Specialist	1,254	47	55	283	527	342
Clinic	6,068	38	866	1,146	2,311	1,707
General Practitioner and Clinic	1,385	53	78	174	694	386
MALE						
ALL CALLS	7,865	103	746	1,187	3,196	2,633
General Practitioner	3,371	17	80	442	1,433	1,399
Specialist	657	47	39	139	328	104
Clinic	3,162	19	598	514	1,025	1,006
General Practitioner and Clinic	675	20	29	92	410	124
FEMALE						
ALL CALLS	10,559	83	457	1,839	4,109	4,071
General Practitioner	6,346	31	124	981	2,340	2,870
Specialist	597	0	16	144	199	238
Clinic	2,906	19	268	632	1,286	701
General Practitioner and Clinic	710	33	49	82	284	262
FEMALE (EXCLUDING CALLS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL CALLS	9,914	83	457	1,591	3,810	3,973
General Practitioner	6,091	31	124	869	2,241	2,826
Specialist	452	0	16	84	128	224
Clinic	2,726	19	268	582	1,188	669
General Practitioner and Clinic	645	33	49	56	253	254

Appendix Table 4. Number of medical services classified by type of attendant for cases of *chronic* illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

AGE GROUP	BOTH SEXES	MALE	FEMALE	FEMALE EXCLUDING GENITAL CONDITIONS AND PREGNANCIES
ACUTE ILLNESS				
ALL AGES	10,198	4,567	5,631	5,027
0-4	2,143	1,135	1,008	1,008
5-14	1,963	1,076	887	881
15-34	3,070	1,167	1,903	1,454
35-54	2,112	796	1,316	1,172
55+	910	393	517	512
CHRONIC ILLNESS (MAJOR AND MINOR)				
ALL AGES	2,142 <sup>1</sup>	831 <sup>1</sup>	1,311	1,231
0-4	20	12	8	8
5-14	155	89	66	66
15-34	372	136	236	211
35-54	755	286	469	425
55+	840	308	532	521

<sup>1</sup> Excludes one case of unknown age.

Appendix Table 5. Number of medically attended cases of acute and chronic illness, classified by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

TYPE OF ILLNESS	AGE GROUP					
	All Ages	0-4	5-14	15-34	35-54	55 +
BOTH SEXES						
ALL ILLNESS	54,061	1,352	8,357	20,648	11,748	11,956
Acute	11,084	1,267	1,417	4,611	2,701	1,088
Chronic	42,977	85	6,940	16,037	9,047	10,868
MALE						
ALL ILLNESS	29,978	795	6,564	8,977	8,382	5,260
Acute	4,157	744	672	1,029	1,241	471
Chronic	25,821	51	5,892	7,948	7,141	4,789
FEMALE						
ALL ILLNESS	24,083	557	1,793	11,671	3,366	6,696
Acute	6,927	523	745	3,582	1,460	617
Chronic	17,156	34	1,048	8,089	1,906	6,079
FEMALE (EXCLUDING DAYS FOR FEMALE GENITAL AND PUERPERAL DIAGNOSES)						
ALL ILLNESS	21,016	557	1,785	9,238	2,775	6,661
Acute	3,860	523	737	1,149	869	582
Chronic	17,156	34	1,048	8,089	1,906	6,079

Appendix Table 6. Number of hospital days for acute and chronic illness by age and sex, Eastern Health District of Baltimore, June, 1938-May, 1943.

## APPENDIX II

### MAJOR CHRONIC ILLNESSES

1. Tuberculosis
- Code Numbers<sup>1</sup>  
020-036,  
038, 039

<sup>1</sup> Code numbers are those from the Manual For Coding Causes of Illness—according to a Diagnosis Code For Tabulating Morbidity Statistics: U. S. Public Health Service, Miscellaneous Publication, No. 32, U. S. Government Printing Office, Washington, 1944.

*Code Numbers*

2. Syphilis	060-069
(061 is classed with cardiovascular disease)	
(063 is classed with psychoses)	
3. Malignant neoplasms	100-169
4. Rheumatic fever	200-202
5. Diabetes	210-219
6. Goiter—toxic	220, 222
7. Pernicious anemia	250
8. Aplastic anemia	259
9. Alcoholism (chronic)	270
10. Apoplexy (stroke)	290
11. Multiple sclerosis	303
12. Parkinson's disease	305
13. Spastic paraplegia	307
14. Psychoses	320-329
15. Psychoneuroses	330-334
16. Mental deficiency	335
17. Epilepsy	336
18. Heart disease	360-365
19. Hypertensive heart disease	370-375
20. Other heart	380, 381, 382, 389
21. Functional disease of heart	388
22. Hypertensive vascular disease	390-399
23. Arteriosclerosis	400
24. Other diseases of the arteries	403, 409
25. Varicose veins of lower extremities	410
26. Plebitis and thrombophlebitis	420, 421
27. Peptic ulcer	520-527
28. Hernia	550, 553
29. Diverticulosis	579
30. Cholecystitis with or without calculi	585, 586
31. Nephritis (chronic)	600
32. Hypertensive vascular-renal disease	607
33. Calculi of kidneys and ureters	619, 620
34. Prostatitis (chronic)	632
35. Arthritis, rheumatoid, osteo-arthritis and other forms	620-629



*Major Chronics (Continued)**Code Numbers*

36. Osteomyelitis	730
37. Osteitis deformans (Paget's disease)	731
38. Brittle bones (Perthes disease)	734
39. Spina Bifida	750
40. Congenital malformation of the heart	753
41. Nervousness	786
42. Behavior problems	787

*CRIPPLING AND DISABLING CONDITIONS*

1. Cataract	341
2. Other conditions of vision	349
3. Deafness	352
4. Old fracture	733
5. Other diseases of the joints	739
6. Other deformities due to previous disease or injury	742
7. Other diseases of organs of movement	749
8. Ill-defined diseases	789

*MINOR CHRONIC ILLNESSES*

1. Gonococcus infection	041
2. Dermatophytosis	092
3. Non-malignant tumors	170-199
4. Goiter—non-toxic	221, 229
5. Diseases of endocrine glands	230-239
6. Obesity	241
7. Malnutrition	242
8. Facial paralysis	310
9. Neuritis	316
10. Migraine	337
11. Glaucoma	340
12. Strabismus	342
13. Otitis media and other ear	350-359 (except 352)
14. Hemorrhoids	415
15. Other circulatory	429
16. Bronchitis	471
17. Sinusitis	495

*Minor Chronics (Continued)*

	<i>Code Numbers</i>
18. Asthma	501
19. Other respiratory (emphysema)	509
20. Colitis (chronic)	539
21. Appendicitis (chronic)	549
22. Indigestion (chronic)	560
23. Salpingitis	650
24. Chronic cervicitis	652
25. Pelvic disease (chronic)	658
26. Menopause	663
27. Menstrual disorder	664
28. Other female genital	666
29. Psoriasis	715
30. Other skin conditions	719
31. Curvature of spine	735
32. Sacro-iliac disease	736
33. Lumbago	782
34. Neuralgia	784
35. Headache (chronic)	785

## ERRATUM

In Table 8, of the article, "Causes of Illness Among Males and Females," by Jean Downes, which was published in the October, 1950, issue of the Milbank Memorial Fund QUARTERLY (XXVIII, No. 4, p. 146), the first line should read:

TOTAL ADMISSIONS	53.5	43.3	63.4	1,114	444	669
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## PSYCHIATRIC SERVICE IN RELATION TO PUBLIC-HEALTH ACTIVITIES<sup>1</sup>

JULES V. COLEMAN, M.D.<sup>2</sup>

IN allying itself with public health, psychiatry has the unique opportunity of extending its insights and concepts into a field that has to do with the preservation of the health of a major segment of the population. From its early beginnings as an institution for the control of the disastrous effects of epidemics, public health has evolved to a broadly based philosophy of preventive medicine, with a deep concern for the person in all of his biological, cultural, sociological, and environmental involvements. The interests of public health parallel the interests of community psychiatry and the participation by psychiatrists in public-health activities offers much toward the mutual enrichment of the two fields for more effective service to patients.

The full development of the contribution each field can make to the other encounters many internal difficulties in both, but for the present discussion I shall confine myself to a consideration of the problem from the point of view of the psychiatrist. A good many orientations that have been found valuable and rewarding in clinical psychiatry need to be reexamined and reformulated when applied to public-health activities. I shall discuss some of these orientations as background to an exploration of the creative possibilities for psychiatric participation in public health.

*The Clinical Bias.* The central concern of the psychiatrist is the care and treatment of the patient with a decompensated psychiatric problem. This is in the tradition of medical practice and education, with their emphasis on descriptive and etiological pathology. The psychiatrist as physician is oriented

<sup>1</sup> Presented at a meeting of the Alumni Association, Menninger Foundation School of Psychiatry, Topeka, Kansas, October 2, 1949, and reprinted by permission of the Editors, from *Mental Hygiene*, xxxiv, No. 3, pp. 364-372.

<sup>2</sup> Formerly Mental Hygiene Clinic, University of Colorado Medical Center, Denver; at present New Haven, Conn.

toward the individual patient, whose problems he isolates for purposes of study and treatment. The social pattern that is the basic reality in the living experience of the patient is reproduced for treatment purposes in the doctor-patient relationship, although subject to the distortions of the authoritative, magical, and dependency implications in this relationship.

The major forms of psychiatric illness—the psychoneuroses, the functional psychoses, and the psychosomatic conditions—occupy a special position in the catalogue of human disease. They are ubiquitous and pervasive; they exhibit a marked tendency to chronicity; they are intimately related to cultural and social conditions; and they commonly show phases of remission, exacerbation, and compensation in relation to the life experiences of the individual, and the fluctuations, often accidental, in the character of his interpersonal relationships. They demonstrate in the mass an unbroken line from the very mild to the very severe, and they may stabilize or show social compensation at any level of severity.

Because of the particular nature of these affections, any approach in medical management that is based upon individual psychotherapy as an end in itself is likely to be peripheral from the point of view of the totality of the problem. The psychiatric case-study approach is of course a basic medical responsibility, and an invaluable research source in the understanding of psychopathology and psychodynamics, but *alone*, without an alliance with a broader epidemiological approach, it remains unrealistic and unavailing. If there were ten or a hundred times as many psychiatrists as we have to-day, and if they were all skilled psychotherapists, their contribution to our problem would still be of relatively little importance. Nevertheless, the value of direct psychotherapy for the individual patient may be so great that it becomes essential to avoid treatment waste, not only through careful attention to treatment indication and goals, but also through the study of those institutionalized community activities which have a bearing on the extent of psychiatric decompensation.

Actually, in spite of the shortage of psychiatrists and of psychiatric treatment resources in communities, the psychiatric problems of people who live in the community do not go untreated; for if they did, our society would be disrupted and chaotic. Institutional patternings are constantly being created in efforts at adaptation to the changing needs of people in a changing world. In effect, direct psychiatric treatment is a relatively minor social method of reducing individual anxiety, reconciling inner conflicts, and satisfying personal emotional needs. However, because patternings in society evolve slowly, we find, in a transitional society such as ours, a mounting incidence of decompensated psychiatric disturbance, particularly of psychoneurotic and psychosomatic conditions.

The most important institutional forms in which attempts are being made at this time to develop the skills and professional resources to meet these increased demands of human need and distress are: social work; nursery, primary, and secondary education; and public health. In each of these fields the problem is identified as belonging to mental hygiene, and explorations of one kind or another have been under way to discover how psychiatric personnel may be included, administratively and functionally, within existing organizations. A basic difficulty has been the tendency to separate psychiatric problems from their original context in the service programs of the agencies, and since psychiatrists have offered encouragement and support to this tendency, it might be worth while to consider more carefully this matter of psychiatric insularity.

*The Isolative Tendency.* If the psychiatrist is to participate in collaborative programs with professional workers in other service fields, it must be on the basis of a preliminary two-way learning experience in which goals and objective are carefully discussed in relation to the staff needs that the psychiatrist is expected to meet. The rôle of the psychiatrist may be characterized as that of a participant rather than of a consultant, in order to emphasize this two-way learning process. While the psychiatrist has a great deal to offer other professional workers

from his knowledge of behavior and personality, his contribution usually cannot be assimilated directly—i.e., in its original psychiatric or psychoanalytic conceptual framework—but must be reformulated, translated, and adapted to the frame of reference, the terminology, and the procedural modes of the particular professional group with whom he is working.

It would seem that persons whose field of concentration is that of dynamic psychology tend to develop a psychological gun-barrel vision, and find it difficult to give up their biases of terminology and conceptual habit frameworks. Although this may be no different from the attitude of other specialists, the psychiatrist is being called upon more and more to contribute to fields other than his own, and this makes the problem of cross-disciplinary communication of particular interest and importance in psychiatry.

Actually, the problem is not merely one of semantics. There is the fundamental assumption prevalent in psychiatry that anybody can benefit from psychiatric knowledge, particularly the knowledge of psychodynamics, and that, having such knowledge, anybody can apply it directly to his personal or professional problems. At first glance, such an assumption does not seem to be isolative in tendency, since it would certainly appear that psychiatry is extremely generous in sharing its insights and concepts not only with other professional workers, but with the lay public as well. However, when it does so, it is almost always on its own terms, in its own ways, by its own methods, with little questioning of the value, the applicability, or the effects of what is done. The psychiatrist remains isolated when he does not avail himself of the opportunity to acquire a knowledge of the field in which he is teaching, or when he tries to reorient the field in the direction of psychoanalytic method. The worker in the field runs the risk of becoming isolated from the original sources of his professional training and experience, by substituting dynamic concepts for those from his own profession.

Now how do these considerations apply to the field of public

health? In what way can psychiatry make a contribution that would reinforce existing achievements of value, without attempting to change the patterns of public-health activities or the direction of its growth? How can the concepts and methods of psychiatry be adapted to fit the needs of the thousands of public-health personnel who have an expressed interest in obtaining mental-hygiene assistance with their professional problems? And how can public-health administrators be of help in working out the problem?

If I offer here some principles for consideration, I do so with caution and restraint, and with the awareness that there is little in this particular area of collaboration that is not untried and untested.

*The mental-hygiene approach, based on a broad consideration of the welfare of the individual, is an integral and inseparable part of the philosophy of public-health practice. It is concerned with the individual's problem-solving capacities and potentials in relation to his emotional needs, his personal difficulties, and the stresses in his social situation.*

Clinical personnel in health departments have three generalized functions, in addition to the particular service they are carrying out; these three are mental hygiene, health education, and nutrition. The first is of basic importance since it pertains to the doctor-patient and nurse-patient relationship, by virtue of which the cultural rôle of medicine as the guardian of health attains reality in the confidence and faith of the patient. Health education is the medium through which this relationship is established, fostered, and translated into concrete health services. Nutrition is more limited in scope, but of importance because of the high incidence of primitive attitudes and disturbed emotional patterns in relation to eating. In all three areas, the clinician and the public-health nurse should have basic competence in relation to the recognition and to some extent the identification of problems, with an awareness of the limitations inherent in generalized as contrasted with special training.



The patients who receive health-department services present a wide range of emotional problems. With some, anxiety is a reaction to the presence of the illness or its acceptance, as in the case of the patient who has learned as a result of the mass-survey X-ray that he has pulmonary tuberculosis, or the adolescent who has contracted an initial venereal infection. The anticipatory anxiety of the woman in the prenatal clinic is often well covered up by stereotype cultural attitudes, and hence is not always readily accessible. In child-health stations, mothers are particularly worried about problems of child care in the first year of life, and particularly about problems of feeding, sleeping, and elimination. In school health services, the physician meets the gamut of child psychiatric syndromes, and it is the estimate of one observer in this field that 65 per cent of all problems found in routine physical examinations of school children are psychogenic in origin, or have important psychological components.

The most reasonable orientation for public health, then, is to regard mental hygiene as an intrinsic part of its own job, related to its every-day work, and applicable to the problems of all its patients rather than a selected few. At the present time, most health-department personnel recognize that they have some measure of responsibility for the emotional problems that are found in patients in relation to the health services they receive, but a lack of professional preparation in this area and of available psychiatric consultation usually leads to their failing to recognize, or ignoring, or dealing mechanically with many of these problems.

*The contribution of psychiatry to public health is contingent upon an acceptance and approval of the philosophy and aims of public health, a willingness to work within its administrative and functional organization, and a recognition of the mental-hygiene objectives that public health has already achieved.*

One may distinguish between *indirect* and *direct* treatment services. In the former, the objective is not psychiatric



treatment, but a different kind of service. In a children's institution, for example, the primary service is to provide a satisfactory setting for the total life experience of the child, and psychotherapeutic benefits will come out of it to the extent that the setting is satisfactory from the standpoint of this primary function. Indirect or *supporting* treatment services represent organizational modes of meeting human need, and they are successful in direct ratio to the flexibility of their organizational structure in allowing the expression and gratification of individual strivings.

A public-health unit is likewise a method of patterning interpersonal relationships, in this instance for the purpose of rendering health service. As an institutional response to an important area of need in the community, it plays a significant supporting rôle in relation to psychiatric problems. Even though its personnel may be for the most part almost entirely unsophisticated in psychiatric thinking, yet the mode of organization of the child-health station, for example, is such that it is able to accomplish its mass objective of substantially reducing the reservoir of anxiety in the large group of parents who receive its services. Its supporting function can be improved, true, but it is already a vital force in the family life of many communities to-day, particularly in the large urban centers.

In any of the supporting services in a community, whether it be a children's institution, a welfare agency, or a public-health unit, the psychotherapeutic potential is inherent in the form of organization that patterns the interpersonal relations of the staff and the persons receiving service. When psychiatric service is added, it must be related to the basic organizational pattern through administrative channels, if its contribution is not to remain inconsequential. The psychiatrist must extend his conceptual awareness from the relatively narrow range of the individual doctor-patient relationship to the complex network of interpersonal relationships in the large organizations.

In order that they may be accomplished, the administrative

staff of the public-health unit has a responsibility for entering with its psychiatric personnel into a continuing process of clarification of function, demarcation of responsibility, and establishment of administrative channels for the proper integration of mental-hygiene services with others in the health department. The responsibility cannot be left to the psychiatrist alone, since he cannot be expected to understand the particular administrative framework in which he is expected to work. On the other hand, the psychiatrist's participation is obviously needed in planning a psychiatric service in order to protect the technical demands of the job.

*With regard to their method of teaching, psychiatric personnel must consider the factors of readiness and interest in the public-health staff, their level of psychiatric sophistication or lack of it, and their flair for dealing with problems of individual patients.*

The aim of a psychiatric service in a health department is not to teach psychiatry, but to help public-health workers with the emotional problems that they find in their patients. It is to help them to be better public-health workers, not mental-hygiene aides or minor psychiatrists.

Interviewing is a basic method in public health. For the administrator or the clinician or the nurse, interviewing is an essential skill. The public-health worker pays little attention to process or technique in the interview, but centers his interest on its purpose, which is very often educational, and on his own activity of obtaining and giving information. It is easy for the patient as a person to become lost in the process. One observes that nurses and clinicians often seem not to hear what patients are saying, or if they hear, to pay no attention, so intent are they on moving through their established routine of interviewing, as if it were a ritualistic ceremonial. My impression is that behavior of this kind is based on tension and that it is most apparent when an observer is present; but it is common in public-health practice.

It has seemed to me that the tension is a product of adminis-

trative defects, arising out of a lack of clarification of job status and of responsibilities and limitations of function; administrative confusions in relation to the goals and purposes of public health itself and anxieties as to its standing in the world of medical opinion; lack of coördination and lack of attitudes of coöperation among services, particularly in a large health department; rigid and punitive attitudes of supervisory personnel; and certain difficulties in the nurse-doctor relationship due to the traditional attitudes of each as well as their rôle differences in existing health-department structures. These are all factors that impair the spontaneity of the health worker's response to patients, and tend to substitute mechanical routine for a free use of the professional personality in response to the needs of patients.

The psychiatrist can do very little about such problems except to point out their effects to the administrator to whom the responsibility does belong. Yet in his teaching he must take their results into consideration, and deal with tensions and resistances as the first step in teaching—and often as a major objective—until his own relations with the staff are such that they can accept and make use of his contributions. The psychiatrist may participate in public-health clinics, workshops, conferences, and training programs, and in each area he must be alert and responsive to the anxious and hostile attitudes of the people he is working with, whether those attitudes are derived from the unfamiliar contact with psychiatry, from administrative lack of clarity, or from the personal problems of some of the staff members themselves.

The teaching of techniques of interviewing is a temptation that should be resisted. It seems to me that emphasis should, instead, be placed on helping the staff to discover their own potential objective interest in and curiosity about people, and to free them to be helpful in terms of the patients' needs rather than their own. Since public-health workers are in any case not doing a direct psychiatric job with patients, any stimulation of interest in techniques of interviewing can only lead them down

byways away from their primary goal of rendering health services.

To summarize, my main thesis has been that public health carries a large and important responsibility for mental health in terms of its own practice and its own functions. It deals with masses of people who have the usual run of psychiatric problems. These people, however, are for the most part applying for health services, and many may be helped with their emotional problems by a better practice of public health if consideration is given to the principles of comprehensive medicine. By participating as consultants and educators in a staff-oriented program, psychiatrists may make a significant contribution in this new epidemiological approach to the mental-hygiene problem in public health.

## SOCIAL AND PSYCHOLOGICAL FACTORS AFFECTING FERTILITY

### XI. THE INTERRELATION OF FERTILITY, FERTILITY PLANNING, AND FEELING OF ECONOMIC SECURITY

CLYDE V. KISER AND P. K. WHELPTON<sup>1</sup>

ECONOMIC insecurity engendered by modern urban life has been mentioned by various writers as a possible cause of the long-time decline of the birth rate or the rural-urban differences in fertility. In fact, there is implicit in much of the current pronatalist legislation of other countries the assumption, or at least the hope, that married couples will have more children if they can be made to feel less insecure regarding financial matters.

Despite the long-standing assumption of a relation between economic security and fertility, very little in the way of inductive data on this subject has been available. One reason for this has doubtless been the highly subjective nature of "economic security" and the difficulty of assessing the *degree* or *strength* of the feeling of economic security.

Furthermore, as will be discussed more fully in a later section, the relation between feeling of economic security and fertility is two way rather than one way, for either of the two variables may be the cause or effect of the other. A couple may feel economically insecure and limit their children to one or two. On the other hand, a couple may have six or more children and develop a feeling of economic insecurity partly *because* of the large family. Difficulties of this type are not confined to data concerning economic security in relation to fertility, but are also unceasingly encountered in the general field of social science.

*The hypothesis* concerning economic security was one of

<sup>1</sup> This is the eleventh of a series of reports on a study conducted by the Committee on Social and Psychological Factors Affecting Fertility, sponsored by the Milbank Memorial Fund with grants from the Carnegie Corporation of New York. The Committee consists of Lowell J. Reed, Chairman; Daniel Katz; E. Lowell Kelly; Clyde V. Kiser; Frank Lorimer; Frank W. Notestein; Frederick Osborn; S. A. Switzer; Warren S. Thompson; and P. K. Whelpton.

twenty-three included for investigation in the Study of Social and Psychological Factors Affecting Fertility.<sup>2</sup> It reads as follows in its originally stated form:

"The greater the feeling of economic insecurity, the higher the proportion of couples practicing contraception effectively and the smaller the planned families." Relevant to this hypothesis are three types of data: those relating to (a) fertility, (b) fertility-planning status, and (c) feelings of economic security. The measure of fertility used in the present analysis relates to number of children ever born alive per 100 couples.

The classification of the 1,444 "relatively fecund" couples by fertility-planning status has been described in detail in previous reports.<sup>3</sup> In general, the detailed pregnancy and contraceptive histories, including data on outcome of pregnancies and attitudes toward each pregnancy, constitute the criteria for the classifications. The four broad categories used in this Study, in descending degree of success in planning family size, are: number and spacing of pregnancies planned, number planned, quasi-planned, and excess fertility.<sup>4</sup>

<sup>2</sup> The general purpose, scope, and methods of the Study have been described in detail in previous articles. The Study was conducted in Indianapolis in 1941 and the data for the present analysis relate to an adjusted sample of 1,444 "relatively fecund" couples with the following characteristics: husband and wife native white, both Protestant, both finished at least the eighth grade, married during 1927-1929, neither previously married, husband under 40 and wife under 30 at marriage, and eight or more years spent in a city of 25,000 population or over since marriage. Couples with these characteristics were located by means of a preliminary Household Survey of virtually all white households in Indianapolis.

For purposes of the Study, all couples with four or more live births were classified as "relatively fecund" regardless of other circumstances. Couples with 0-3 live births were classified as "relatively fecund" unless they knew or had good reason for believing that conception was physiologically impossible during a period of at least 24 or 36 consecutive months since marriage (24 for never-pregnant couples, 36 for others). Failure to conceive when contraception was not practiced "always" or "usually" during periods of above durations was considered "good reason" for such belief. Couples not classified as "relatively fecund" were considered "relatively sterile." The 533 "relatively sterile" couples were not asked to supply data such as those relating to economic security.

<sup>3</sup> See especially Whelpton, P. K. and Kiser, Clyde V.: Social and Psychological Factors Affecting Fertility. VI. The Planning of Fertility. *The Milbank Memorial Fund Quarterly*, January, 1947, xxv, No. 1, pp. 63-111 (Reprint pp. 209-257).

<sup>4</sup> The four categories may be briefly described as follows:

*Number and Spacing of Pregnancies Planned.* The 403 couples in this group ex-

(Continued on page 43)



The measures of economic security are based mainly upon "multiple choice" replies of the husbands and wives to a series of questions designed specifically to afford bases for classification by "feeling of economic security." The form on which these questions appeared was filled out by the husband and wife separately in the presence of the interviewer, usually at a pre-arranged evening appointment in the home of the couple.

One question relating directly to the impact of economic security on fertility was "How much has . . . not being sure of having a steady income . . . discouraged you and your husband (wife) from having more children?"<sup>5</sup> The five possible replies were "very much," "much," "some," "little," and "very little or not at all." The other questions, aimed at eliciting feeling of economic security, *per se*, are listed below. Each was answered by checking one of five categories like those just mentioned. The full set of replies is shown in Appendix II.

How sure do you feel that you will be able to meet family expenses during the next five years?

How much of the time [since marriage] have you been faced with the possibility that your husband ["you" in case of the husband] might have a large pay cut or be out of a job for several months?

hibit the most complete planning of fertility in that they had no pregnancies that were not deliberately planned by stopping contraception in order to conceive. The group consists of two major subdivisions: (a) 121 couples practicing contraception regularly and continuously and having no pregnancy, and (b) 282 couples whose every pregnancy was deliberately planned by interrupting contraception in order to conceive.

*Number Planned.* This group of 205 couples consists mainly of those whose last pregnancy was deliberately planned by stopping contraception in order to conceive but who had one or more previous pregnancies under other circumstances. Because of this, the couples are regarded as having planned the number but not the spacing of their pregnancies.

*Quasi-Planned.* This group includes 454 couples who did not deliberately plan the last pregnancy in the manner described above but who either wanted the last pregnancy or wanted another pregnancy.

*Excess Fertility.* This group is composed of 382 couples classified as least successful in planning size of family because one or more pregnancies had occurred after the last that was wanted.

<sup>5</sup> In the separate questionnaire formulated for childless couples the question relates to "children" instead of "more children."

How much of the time [since marriage] have you had to give relatives considerable financial help, or been faced with the possibility of having to do so?

How much financial help could you expect from relatives in case of an emergency in your family?

Has your family had special expenses (sickness, accidents, etc.) that have put a great strain on the family pocketbook?

In addition, the schedules contained an "Interviewer's Rating Scale" in which the interviewer recorded her personal rating of the husband and wife with respect to certain characteristics. The five possible ratings on "feeling of economic security" ranged from "feels perfectly secure economically" to "very worried about the economic future." It was thought that the interviewer's judgment, recorded shortly after the several interviews were completed, would afford useful supplementary data.

Summary indices of economic security were constructed for the wife, husband, and couple, based upon all items listed above except "special expenses arising from sickness, accidents, etc."<sup>6</sup> This item was omitted from the index because analysis suggested strongly the presence of selective factors—the more children the couple had the more they were subjected to expenses of this type.

*Distributions by Various Measures of Economic Security.* Percentage distributions of wives and husbands by various measures of economic security are given in Appendix III. Although there is a fairly good scatter of replies to the different questions, the interviewer's ratings are distributed much more like a bell-shaped curve than are the self-ratings on the five-point scale.<sup>7</sup> The self-ratings of wives and husbands tend to be skewed toward the two categories presumed to be indicative

<sup>6</sup> The construction of the indices of economic security is described in Appendices I and II.

<sup>7</sup> The interviewers checked the middle category "feels fairly secure" for about 37 per cent of the wives and husbands. The percentages in the two higher and two lower ratings tail off in bell-shaped fashion. Totals of 28 per cent of the wives and 30 per cent of the husbands were given higher ratings than "fairly secure." Totals of 35 per cent of the wives and 33 per cent of the husbands were rated as having "doubts frequently" or as "very worried."



of rather strong feeling of economic *security*. Over half of the replies are in these two categories for four of the six questions for wives and husbands.<sup>8</sup> For all except one of the items, less than 25 per cent of the wives or husbands checked either of the two categories presumed to be indicative of rather strong feeling of economic *insecurity*.<sup>9</sup>

*Interrelation of Measures of Economic Security.* The interrelationship of the several measures of economic security was measured by the Pearsonian coefficient of correlation. The highest correlation coefficient obtained (+.65) is the one between interviewer's rating of the wife and husband.<sup>10</sup> The correlations of the self-ratings of husbands and wives on the same items range from +.26 to +.51 and the average of the six coefficients of this type is +.42 (see Table 1).

The data indicate rather strongly that the four items concerning confidence in meeting future expenses, possibility of husband's pay cut or unemployment, interviewer's rating, and discouraged by economic insecurity from having more children, are much more closely interrelated than are the three remaining items (special expenses since marriage, financial help to relatives, and financial help from relatives).

The coefficients of correlation between any two of the first four items extend from +.21 to +.64 and their average is +.38. The correlations between any two of the last three items

<sup>8</sup> The largest amount of skewness in this direction is found in replies to the question on confidence in meeting future expenses. About 58 per cent of the wives and 64 per cent of the husbands checked "very sure" or "reasonably sure." It should be pointed out, however, that in this instance the reply "reasonably sure" would seem to correspond more closely to the central category on the interviewer's rating scale "feels fairly secure" than to the second category "has few qualms." In other words, the scaling of these two items may not be very comparable.

<sup>9</sup> The exception is the question regarding amount of financial help that could be expected from relatives in case of an emergency. About 36 per cent of the wives and 35 per cent of the husbands checked either "probably none" or "definitely none."

<sup>10</sup> With  $n=858$  (uninflated sample 860-2), coefficients of correlation of  $\pm .07$  and over are significant at the 5 per cent level and those of  $\pm .09$  and over are significant at the 1 per cent level. It should be emphasized, however, that significance in this sense means only that the departure from .00 correlation is greater than the amount that might arise from chance at given level of probability. For further discussion, see Snedecor, George W.: *STATISTICAL METHODS*. Ames, The Iowa State College Press, 1948 (Third Printing), pp. 148-149.

**Table 1. Intercorrelation of measures of economic security.**  
(Coefficients of correlation are positive (+) unless otherwise indicated.)

[illegible]

range from +.03 to +.27 and the average is +.14.<sup>11</sup> Furthermore, the correlation between any item in the last group and any item in the first group tends to be low. In other words, except for husband-wife replies to the same question, the correlations involving either one or two of the last three items tend to be low. The sixty coefficients in this category range from -.05 to +.27 and the average is only +.08.

These and other data to be presented later suggest that the replies to questions on special expenses, help to relatives, and help from relatives provide relatively inadequate criteria of economic security. The inadequacies will be discussed in a later connection.

*Relation of Measures of Economic Security to Measures of Socio-Economic Status.* The over-all correlation of the index of economic security of the couple with the index of socio-economic status of the couple is +.46, relatively high for the coefficients relating to the various hypotheses in this Study.

The four items on economic security that are more highly interrelated than the three remaining items tend also to be the four items that are more highly correlated with socio-economic status. Also, as indicated in Table 2, each of these four measures of economic security is more closely related to husband's average annual earnings than to net worth, monthly rent, education, and Chapin's Scale.

The comparatively sharp relation of index of economic security of the couple to husband's average annual earnings is indicated in Table 3. The median average annual earnings of the husband since marriage increases consistently with increasing

<sup>11</sup> Both averages are lowered by the inclusion of coefficients relating to reply of wife to one question and reply of husband to another. If these are eliminated the higher average is raised to +.44 and the lower to +.17.

One or two additional points may be noted regarding the first four items. The interviewers' ratings of the wife and husband on economic security are more closely related to the item regarding confidence in meeting future expenses than to any other ( $r = +.52$  for wife and  $+.56$  for husband). The relation or consistency of replies to questions in this category is a little higher for wives than for husbands. The three coefficients are  $+.37$ ,  $+.39$  and  $+.64$  (average  $+.47$ ) for the wife and  $+.36$ ,  $+.36$ , and  $+.48$  (average  $+.40$ ) for the husband. Within the first four items the average of the twelve correlations between data for the wife on one question and husband on another is  $+.32$ .

index of economic security. The range extends from \$1,150 for couples in the lowest category (under 40) with respect to index of economic security, to \$2,200 (or nearly twice as high) for couples in the highest category (90+). The increases in net worth and score on Chapin's Social Status Scale which accompany increases in index of economic security are somewhat less marked on a relative basis, but they, too, are conspicuous. The median net worth is \$1,500 and \$2,524, respectively, for couples with scores of "under 40" and "90 and over" in the index of

Table 2. Correlation of measures of economic security with selected measures of socio-economic status. (Coefficients of correlation are positive (+) unless otherwise indicated.)<sup>1</sup>

MEASURE OF ECONOMIC SECURITY FOR WIFE AND HUSBAND	MEASURE OF SOCIO-ECONOMIC STATUS				
	Hus- band's Average Annual Earnings	Net Worth of Couple	Monthly Rent (Σ Codes)	Educa- tion Wife and Hus- band (Σ Codes)	Chapin's Social Status Scale
Confidence Meeting } W	.30	.24	.22	.24	.29
Future Expenses } H	.25	.23	.20	.19	.23
Frequency Faced Possibility } W	.45	.27	.34	.25	.28
Husband's Pay Cut or } H	.37	.26	.28	.17	.23
Unemployment					
Interviewer's Rating— } W	.49	.44	.39	.29	.41
Economic Insecurity } H	.45	.35	.34	.29	.35
Larger Family Discouraged } W	.38	.25	.29	.20	.23
by Economic Insecurity } H	.26	.14	.21	.13	.16
Extent Special } W	.11	.15	.08	.07	.09
Expenses } H	.10	.19	.10	.00	.09
Frequency Financial } W	.01	.02	.03	.04	.01
Help to Relatives } H	-.01	.04	.08	.08	.01
Amount Financial } W	.13	.06	.11	.24	.13
Help Could Expect } H	.11	.09	.10	.21	.15
from Relatives					

<sup>1</sup> Since measures of socio-economic status were scaled in the direction of low index = high status and those relating to economic security were scaled in the opposite direction (low index = low security), the computed coefficients of correlation were mainly (-) rather than (+). All signs have been reversed in the above table to indicate the real nature of the relationship between socio-economic status and economic security, which is positive (+).

INDEX OF ECONOMIC SECURITY OF THE COUPLE	NUMBER OF COUPLES	MEDIAN VALUES				
		Husband's Average Annual Income	Net Worth of Couple	Chapin's Social Status Score	Age at Marriage	
					Wife	Husband
TOTAL	1,444	\$1,576.	\$1,882.	121	20.8	23.4
Under 40	41	1,150.	1,500.	95	19.8	23.4
40-49	117	1,319.	1,700.	105	19.7	23.4
50-59	236	1,354.	1,595.	105	20.3	22.8
60-69	324	1,442.	1,750.	113	20.6	23.3
70-79	356	1,744.	1,971.	130	21.2	23.4
80-89	261	2,023.	2,151.	149	21.2	23.4
90+	109	2,200.	2,524.	156	21.9	23.8

Table 3. Median income, net worth, score on Chapin's social status scale, and age of wife and husband at marriage, by index of economic security of the couple.

economic security.<sup>12</sup> The corresponding median scores on Chapin's Scale are 95 and 156.

It is commonly assumed that one's feeling of economic security is raised if his income or general socio-economic status is raised and *vice versa*. One would suspect any classification by "economic security" if it bore no relationship to income or other measures of socio-economic status. On the other hand, one probably would suspect an index of economic security if it were perfectly correlated with socio-economic status. Just what degree of relationship would be found with fully accurate and adequate data of both types we do not know. However, the relationship observed indicates the desirability of introducing subdivisions by socio-economic status into the analysis of the relation of economic insecurity to fertility planning and size of planned family.

<sup>12</sup> These data are of interest as indicating that when these couples were interviewed the median net worth was only about \$300 above the median average annual earnings of the husband. In other words, after 12-15 years of married life, the median amount that was "laid by" or "salted away in property" was only a little more than the average annual earnings of the husband, and this was fairly consistent in the various "economic security" categories.

It is also of interest to note that whereas the age of the wife at marriage tends to increase slightly with increasing index of economic security of the couple, there appears to be no relation between age of the husband at marriage and index of economic security of the couple.

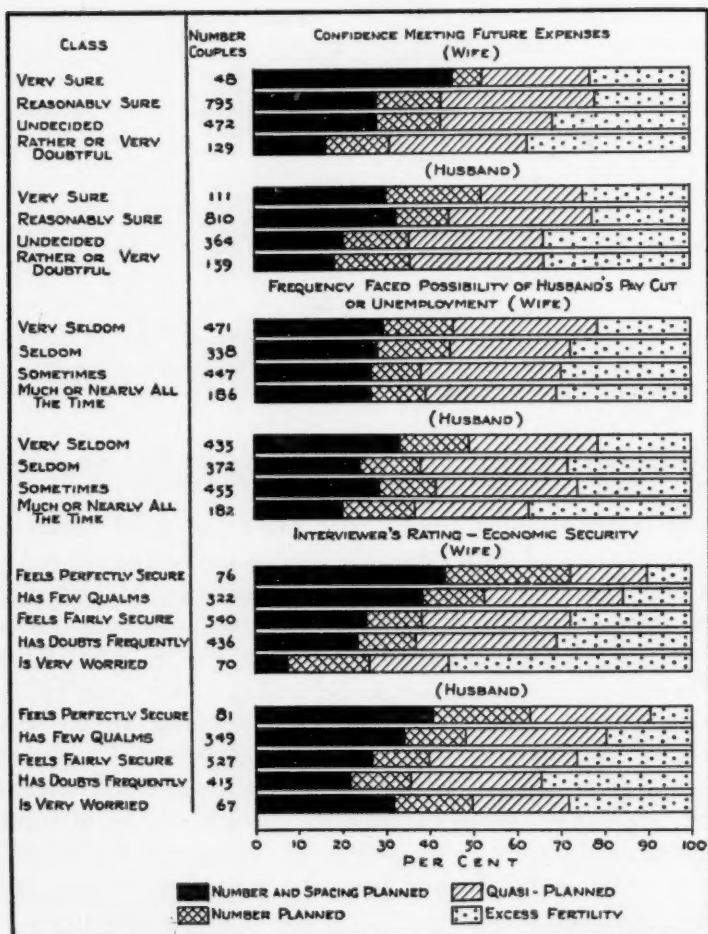


Fig. 1. Fertility-planning status by self-ratings of wives and husbands on confidence in meeting future expenses and frequency of facing possibility of husband's pay cut or unemployment, and by interviewer's ratings of wives and husbands on feeling of economic security (see Table 4).

#### *Economic Security in Relation to Fertility-Planning Status.*

As previously indicated, the first part of the hypothesis under consideration is: "The greater the feeling of economic insecurity, the higher the proportion of couples practicing contracep-



MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
ALL COUPLES	1,444	100	27.9	14.2	31.4	26.5
<i>Confidence Meeting Future Expenses:</i>						
<i>Replies by Wife</i>						
Very Sure	48	100	45.8	6.3	25.0	22.9
Reasonably Sure	795	100	28.4	14.5	35.1	22.0
Undecided	472	100	28.4	14.4	25.8	31.4
Rather or Very Doubtful	129	100	16.3	14.7	31.8	37.2
<i>Replies by Husband</i>						
Very Sure	111	100	30.6	21.6	23.4	24.3
Reasonably Sure	810	100	32.7	12.1	32.8	22.3
Undecided	364	100	20.6	15.1	31.0	33.2
Rather or Very Doubtful	159	100	18.2	17.6	30.8	33.3
<i>Frequency Faced Possibility of Husband's Pay Cut or Unemployment:</i>						
<i>Replies by Wife</i>						
Very Seldom	471	100	29.9	15.5	33.3	21.2
Seldom	338	100	28.1	16.6	28.1	27.2
Sometimes	447	100	26.4	11.6	32.7	29.3
Much or Nearly All the Time	186	100	26.3	12.9	30.1	30.6
<i>Replies by Husband</i>						
Very Seldom	435	100	33.6	15.6	29.7	21.1
Seldom	372	100	24.2	13.7	33.9	28.2
Sometimes	455	100	28.6	12.5	33.0	25.9
Much or Nearly All the Time	182	100	20.3	15.9	26.9	36.8
<i>Interviewer's Rating of Wife:</i>						
Feels Perfectly Secure	76	100	43.4	28.9	17.1	10.5
Has Few Qualms	322	100	38.5	14.0	31.7	15.8
Feels Fairly Secure	540	100	25.7	12.4	34.3	27.6
Has Doubts Frequently	436	100	23.4	13.3	32.3	31.0
Is Very Worried	70	100	7.1	18.6	18.6	55.7
<i>Interviewer's Rating of Husband:</i>						
Feels Perfectly Secure	81	100	40.7	22.2	27.2	9.9
Has Few Qualms	349	100	34.1	14.0	32.4	19.5
Feels Fairly Secure	527	100	26.6	12.7	34.0	26.8
Has Doubts Frequently	415	100	21.7	13.5	30.1	34.7
Is Very Worried	67	100	31.3	17.9	22.4	28.4

Table 4. Fertility-planning status by self-rating of wives and husbands regarding confidence in meeting future expenses and frequency faced possibility of husband's pay cut or unemployment, and by interviewer's ratings of wives and husbands with respect to feeling of economic security.

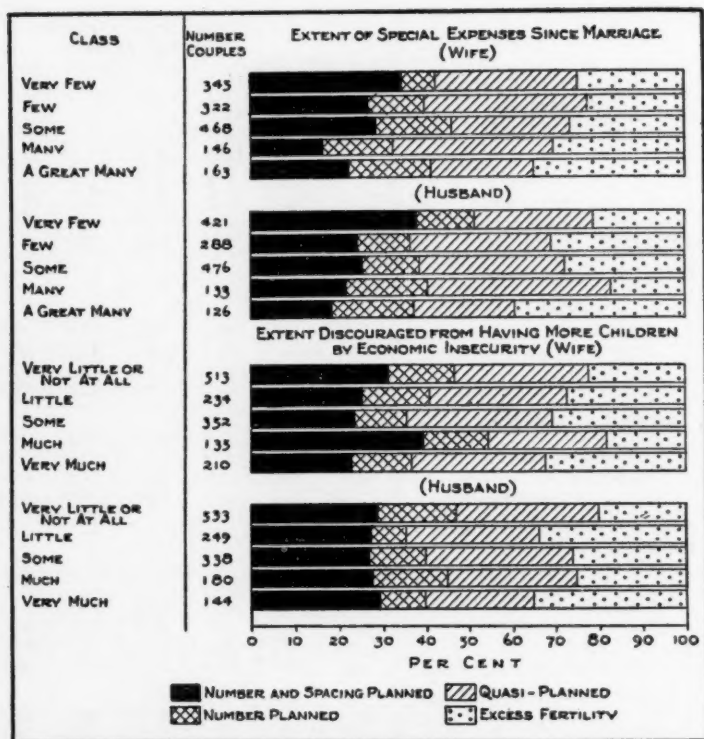


Fig. 2. Fertility-planning status by self-ratings of wives and husbands on extent of special expenses since marriage and on extent of discouragement from having more children by economic insecurity (see Table 5).

tion effectively. . . .” The question immediately arises as to when couples are to be regarded as “practicing contraception effectively.” For purposes of this Study, couples have been so regarded if their “fertility-planning” status is either “number and spacing planned” or “number planned.” It is recognized, however, that “effectiveness” is a relative concept. Thus in testing the hypothesis with Study data, the procedure is that of subdividing the group according to various measures of economic security of the wife, husband, and couple and comparing the subdivisions with respect to fertility-planning status.



MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
ALL COUPLES	1,444	100	27.9	14.2	31.4	26.5
<i>Extent of Special Ex- penses Since Marriage:</i>						
<i>Replies by Wife</i>						
Very Few	345	100	34.8	7.8	32.5	24.9
Few	322	100	27.0	12.7	37.9	22.4
Some	468	100	28.8	17.5	27.4	26.3
Many	146	100	16.4	16.4	37.0	30.1
A Great Many	163	100	22.7	19.0	28.3	35.0
<i>Replies by Husband</i>						
Very Few	421	100	38.2	13.5	27.3	20.9
Few	288	100	24.3	12.5	32.3	30.9
Some	476	100	25.2	13.2	33.8	27.7
Many	133	100	21.8	18.8	42.1	17.3
A Great Many	126	100	18.3	19.0	23.0	39.7
<i>Extent Discouraged From Having More Children by Economic Insecurity:</i>						
<i>Replies by Wife</i>						
Very Little or Not at All	513	100	31.2	15.2	31.2	22.4
Little	234	100	25.2	15.4	31.6	27.8
Some	352	100	23.6	11.9	33.8	30.7
Much	135	100	39.3	14.8	27.4	18.5
Very Much	210	100	22.9	13.8	30.5	32.9
<i>Replies by Husband</i>						
Very Little or Not at All	533	100	26.9	17.8	32.6	20.6
Little	249	100	27.3	8.0	30.5	34.1
Some	338	100	26.6	13.0	33.7	26.6
Much	180	100	27.2	17.2	30.0	25.6
Very Much	144	100	29.2	10.4	25.0	35.4

Table 5. Fertility-planning status by replies of wives and husbands to questions regarding extent of special expenses since marriage and extent to which they were discouraged from having more children by economic insecurity.

The first part of the hypothesis is rather definitely *not* borne out by the data. In fact, a relationship of the opposite type is the one most frequently found with the various indicators of economic security. In other words, a *direct* rather than an inverse relation of fertility planning to economic security is indicated with most of the measures of economic security. The

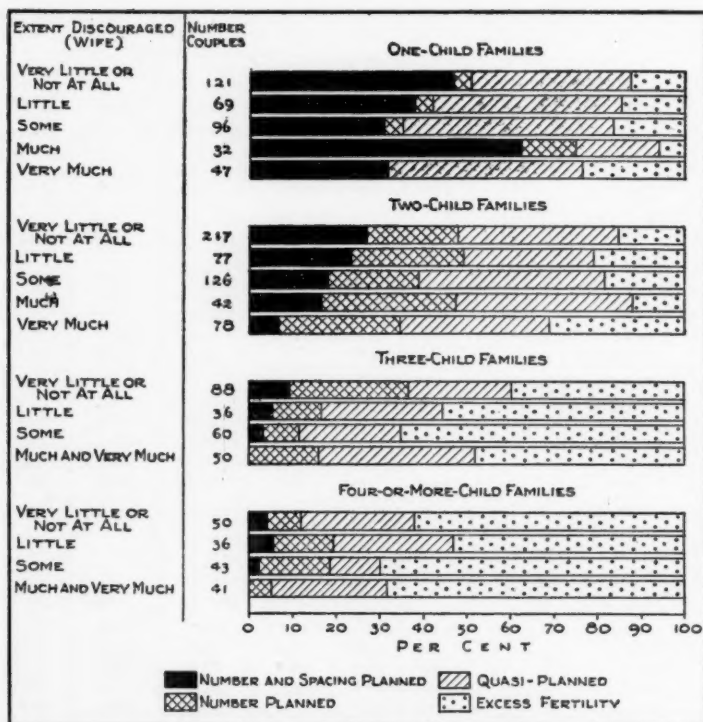


Fig. 3. Fertility-planning status by self-ratings of wives on extent of discouragement from having more children by economic insecurity, by number of live births (see Table 6).

most marked and most consistent relation of this type is afforded by the use of interviewers' ratings of wives as criteria of economic security. (Figure 1, Table 4.) Of the couples with wife rated as "feels perfectly secure economically," 43 per cent are "number and spacing planned" and an additional 29 per cent are "number planned." Thus nearly three-fourths of this group fall into the "planned family" category. Only 11 per cent are in the "excess fertility" category. On the other hand, among couples with wife rated as "very worried," only about one-fourth are in the "planned family" group. Over half (56 per cent) are in the "excess fertility" group.

EXTENT WIFE DIS- COURAGED FROM HAVING MORE CHILDREN BY ECONOMIC INSECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
Very Little or Not at All Little Some Much Very Much	ONE-CHILD FAMILIES					
	121	100	47.1	4.1	36.4	12.4
	69	100	37.7	4.3	43.5	14.5
	96	100	31.3	4.2	47.9	16.7
	32	100	62.5	12.5	18.8	6.3
	47	100	31.9	0.0	44.7	23.4
	TWO-CHILD FAMILIES					
	217	100	27.2	20.7	36.9	15.2
	77	100	23.4	26.0	29.9	20.8
	126	100	18.3	20.6	42.9	18.3
	42	100	16.7	31.0	40.5	11.9
	78	100	6.4	28.2	34.6	30.8
Very Little or Not at All Little Some Much Very Much	THREE-CHILD FAMILIES					
	88	100	9.1	27.3	23.9	39.8
	36	100	5.6	11.1	27.8	55.6
	60	100	3.3	8.3	23.3	65.0
	50	100	0.0	16.0	36.0	48.0
	FOUR-OF-MORE-CHILD FAMILIES					
	50	100	4.0	8.0	26.0	62.0
	36	100	5.6	13.9	27.8	52.8
	43	100	2.3	16.3	11.6	69.8
	41	100	0.0	4.9	26.8	68.3

Table 6. Fertility-planning status by wife's reply to question regarding extent discouraged from having more children by economic insecurity, by number of live births.

This type of relation is sharply indicated in other sections of Figure 1, where the criteria of economic security are self-appraisals of wives and husbands on confidence in meeting future expenses and frequency of facing the possibility of husband's pay cut or unemployment. It is also found in the top sections of Figure 2 and Table 5, where the classifications are by statements on special expenses since marriage. To some extent the

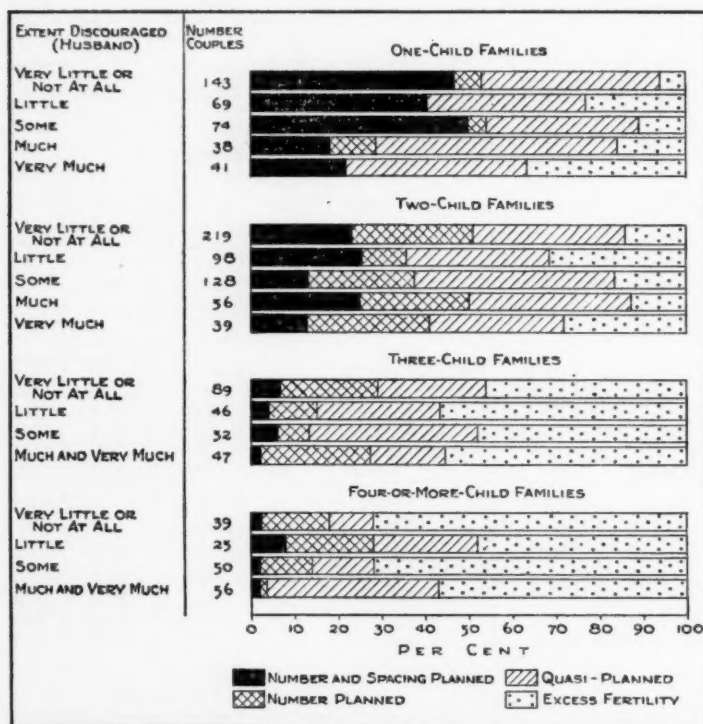


Fig. 4. Fertility-planning status by self-ratings of husbands on extent of discouragement from having more children by economic insecurity, by number of live births (see Table 7).

same direct relation of fertility planning to economic security is found in the lower sections of Figure 2 and Table 5 where the measure of security is the stated extent of discouragement from having children or more children because of economic insecurity. The latter analysis is also shown by number of live births in Figures 3 and 4 (Tables 6 and 7) which indicate that replies to the question on discouragement were influenced by the number of children the couples had as well as by feeling of economic insecurity.

Only the classifications by financial help to and from relatives, shown in Figure 5 and Table 8, fail to indicate a direct

EXTENT HUSBAND DIS- COURAGED FROM HAVING MORE CHILDREN BY ECONOMIC INSECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
Very Little or Not at All Little Some Much Very Much	ONE-CHILD FAMILIES					
	143	100	46.9	6.3	40.6	6.3
	69	100	40.6	0.0	36.2	23.2
	74	100	50.0	4.1	35.1	10.8
	38	100	18.4	10.5	55.3	15.8
	41	100	22.0	0.0	41.5	36.6
Very Little or Not at All Little Some Much Very Much	TWO-CHILD FAMILIES					
	219	100	23.3	27.4	35.2	14.2
	98	100	25.5	10.2	32.7	31.6
	128	100	13.3	24.2	46.1	16.4
	56	100	25.0	25.0	37.5	12.5
	39	100	12.8	28.2	30.8	28.2
Very Little or Not at All Little Some Much and Very Much	THREE-CHILD FAMILIES					
	89	100	6.7	22.5	24.7	46.1
	46	100	4.3	10.9	28.3	56.5
	52	100	5.8	7.7	38.5	48.1
	47	100	2.1	25.5	17.0	55.3
	FOUR-OR-MORE-CHILD FAMILIES					
Very Little or Not at All Little Some Much and Very Much	39 25 50 56	100 100 100 100	2.6 8.0 2.0 1.8	15.4 20.0 12.0 1.8	10.3 24.0 14.0 39.3	71.8 48.0 72.0 57.1

Table 7. Fertility-planning status by husband's reply to question regarding extent discouraged from having more children by economic insecurity, by number of live births.

relation of fertility planning to economic security. The classification by wife's statement on financial help to relatives affords the only clear-cut instance of a relationship of the type stated in the hypothesis. The question on financial help to relatives was included in the Study under the assumption that the frequent necessity of giving considerable financial help to relatives is a deterrent to economic security. In view of the deviant type

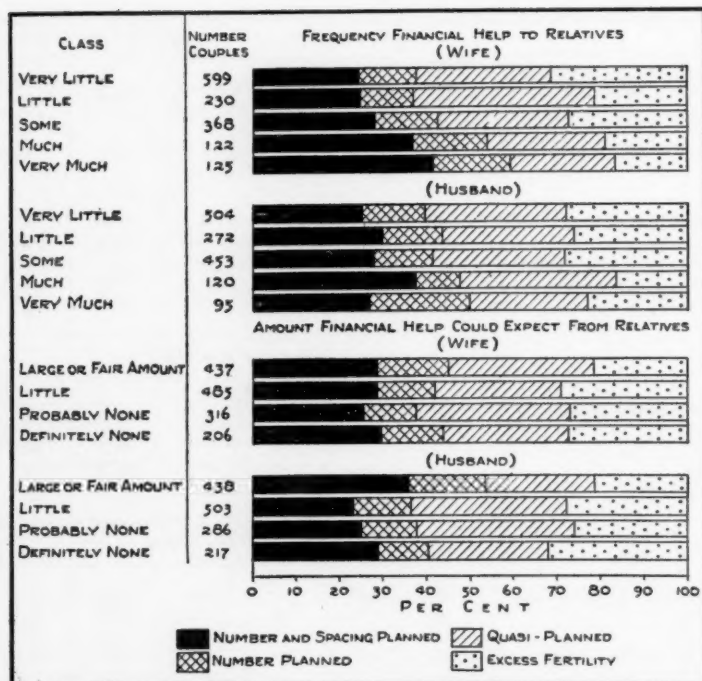


Fig. 5. Fertility-planning status by self-ratings of wives and husbands on frequency of financial help to relatives and amount of financial help that could be expected from relatives in an emergency (see Table 8).

of relationship found, it seems reasonable to suspect that there may be selective factors operating in the other direction. That is, persons in position to give financial help to relatives may tend to be those with sufficient economic security to render such assistance. Possibly the distributions in the top section of Figure 5 simply mean that those who give financial aid to relatives tend to be those who have most successfully planned their fertility or financial affairs or both. In general it seems doubtful that the question on financial help to relatives affords a good indicator of economic security. In some cases the rendering of such assistance may engender feelings of economic insecurity, whereas in others it may of itself be a manifestation of security.

MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
ALL COUPLES	1,444	100	27.9	14.2	31.4	28.5
<i>Frequency Financial Help to Relatives:</i>						
<i>Replies of Wives</i>						
Very Little	599	100	24.4	13.5	30.7	31.4
Little	230	100	24.8	12.2	41.7	21.3
Some	368	100	28.0	14.4	30.2	27.4
Much	122	100	36.9	17.2	27.0	18.9
Very Much	125	100	41.6	17.6	24.0	16.8
<i>Replies of Husbands</i>						
Very Little	504	100	25.0	14.5	32.5	28.0
Little	272	100	29.8	13.6	30.5	26.1
Some	453	100	27.8	13.5	30.5	28.3
Much	120	100	37.5	10.0	35.8	16.7
Very Much	95	100	26.3	23.2	27.4	23.2
<i>Amount Financial Help Could Expect From Relatives:</i>						
<i>Replies of Wives</i>						
Large or Fair Amount	437	100	28.4	16.5	33.2	22.0
Little	485	100	28.5	13.4	28.7	29.5
Probably None	316	100	25.3	12.3	35.1	27.2
Definitely None	206	100	29.6	14.1	28.6	27.7
<i>Replies of Husbands</i>						
Large or Fair Amount	438	100	35.4	17.6	25.3	21.7
Little	503	100	22.9	13.3	35.6	28.2
Probably None	286	100	24.8	12.6	36.4	26.2
Definitely None	217	100	28.6	11.5	27.6	32.3

Table 8. Fertility-planning status by self-rating of wives and husbands regarding frequency of financial help to relatives, and amount of financial help that could be expected from relatives in case of an emergency.

Likewise, the replies to the question regarding financial help from relatives are subject to opposite types of interpretation as indicators of economic security. In including this question in the Study the assumption was made that the feeling of economic security is strengthened by the knowledge or belief that aid from relatives is available if needed. However, it also seems likely that replies to the question may be influenced not only



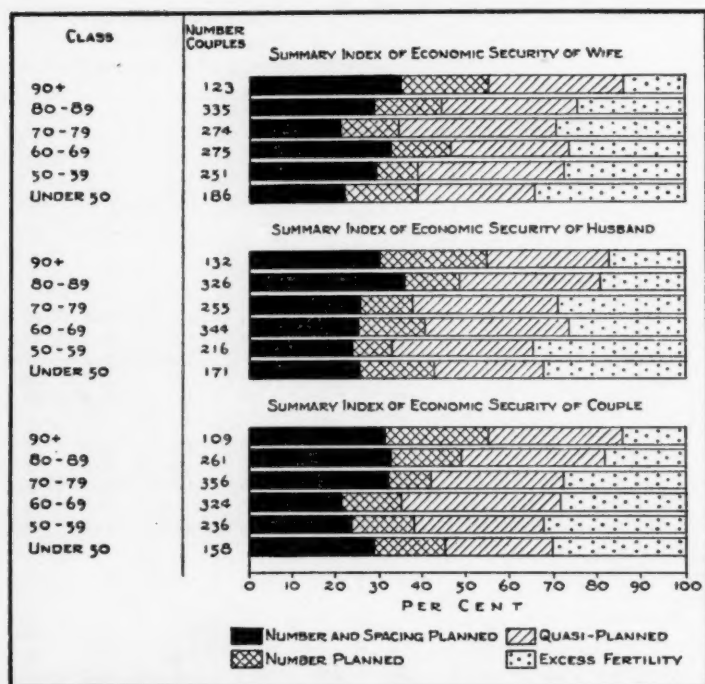


Fig. 6. Fertility-planning status by index of economic security of the wife, husband, and couple (see Table 9).

by availability of help but also by attitudes regarding potential need and by attitudes regarding the solicitation or acceptance of help from relatives. Possibly some of the respondents had, or believed they had, enough self-sufficiency or economic security to reply that they could not expect help from relatives in case of an emergency even though they knew that relatives would be able and willing to help.

The possibility of dual interpretation of the replies regarding help to and from relatives probably helps to account for the low correlation between these items and other indicators of economic security. The inclusion of these items in the index of economic security probably helps also to account for the irregu-



INDEX OF ECONOMIC SECURITY	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
ALL COUPLES	1,444	100	27.9	14.2	31.4	26.5
<i>Summary Index (Wife)</i>						
90+	123	100	35.0	20.3	30.9	13.8
80-89	335	100	29.0	15.2	31.6	24.2
70-79	274	100	21.5	13.1	36.1	29.2
60-69	275	100	32.7	13.8	27.3	26.2
50-59	251	100	29.1	9.6	33.9	27.5
Under 50	186	100	22.0	16.7	27.4	33.9
<i>Summary Index (Husband)</i>						
90+	132	100	30.3	24.2	28.0	17.4
80-89	326	100	35.9	12.6	32.2	19.3
70-79	255	100	25.9	11.8	33.3	29.0
60-69	344	100	25.0	15.1	33.1	26.7
50-59	216	100	23.6	9.3	32.4	34.7
Under 50	171	100	25.1	17.5	25.1	32.2
<i>Summary Index (Couple)</i>						
90+	109	100	31.2	23.9	30.3	14.7
80-89	261	100	32.6	16.1	32.6	18.8
70-79	356	100	32.0	9.6	30.6	27.8
60-69	324	100	21.3	13.6	36.4	28.7
50-59	236	100	23.7	14.0	29.7	32.6
Under 50	158	100	28.5	16.5	24.7	30.4
<i>Summary Index (Joint)</i>						
Wife Husband						
High High	282	100	31.6	21.3	32.6	14.5
High Medium	143	100	30.1	9.1	27.3	33.6
High Low	33	100	24.2	9.1	39.4	27.3
Medium High	147	100	41.5	6.8	25.9	25.9
Medium Medium	284	100	24.3	16.2	34.5	25.0
Medium Low	118	100	16.1	15.3	32.2	36.4
Low High	29	100	24.1	10.3	41.4	24.1
Low Medium	172	100	23.3	13.4	36.0	27.3
Low Low	236	100	28.4	12.3	26.3	33.1

Table 9. Fertility-planning status by index of economic security of the wife, husband, and couple.

larities in the direct relation of fertility-planning status to index of economic security (Figure 6, Table 9). Despite this, however, there is a fairly pronounced tendency for proportions of "planned families" to decrease and for proportions of "excess fertility" couples to increase with lowering of economic security score. This holds true when childless couples (restricted mainly

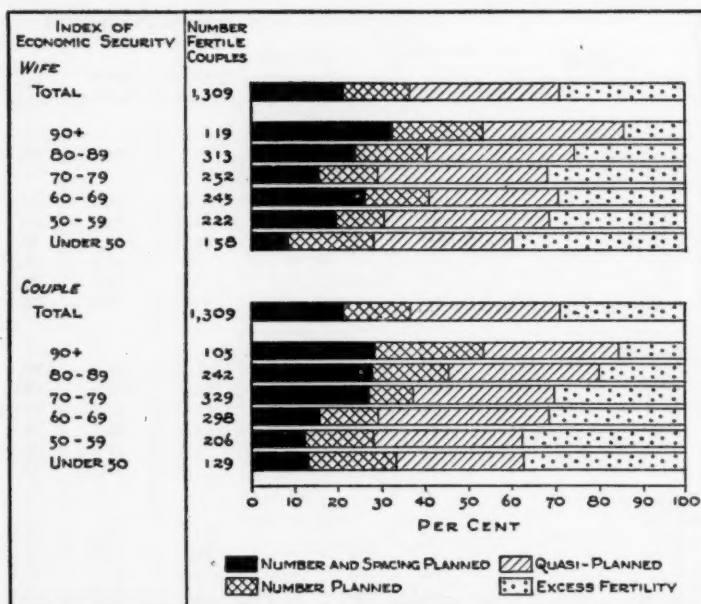


Fig. 7. Fertility-planning status among fertile couples, by index of economic security of the wife and couple (see Table 10).

to the "number and spacing planned" group) are excluded from consideration, as in Figure 7 and Table 10 which relate to couples with one or more live births. In fact, since the childless couples are virtually restricted to the "number and spacing planned" group, and since they tend to be disproportionately represented in classes of low economic security (a situation to be discussed in a later section), the restriction to fertile couples tends to enhance rather than to diminish the direct relation of fertility-planning status to index of economic security of the wife and couple (compare Figures 6 and 7). Similar results were found in a classification of fertile couples by index of economic security of the husband (not included in Figure 7).

*Bearing of Socio-Economic Status.* The rather strong direct relation of fertility planning to economic security appears to stem mainly from a similar relation of fertility planning to

INDEX OF ECONOMIC SECURITY	NUMBER OF FERTILE COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<i>Wife</i>						
Total	1,309	100	21.2	15.4	34.4	29.1
90+	119	100	32.8	21.0	31.9	14.3
80-89	313	100	24.3	16.3	33.9	25.6
70-79	252	100	15.9	13.5	38.9	31.7
60-69	245	100	26.1	14.7	29.8	29.4
50-59	222	100	19.8	10.8	38.3	31.1
Under 50	158	100	8.9	19.6	31.6	39.9
<i>Couple</i>						
Total	1,309	100	21.2	15.4	34.4	29.1
90+	105	100	28.6	24.8	31.4	15.2
80-89	242	100	28.1	17.4	34.7	19.8
70-79	329	100	27.1	10.3	32.5	30.1
60-69	298	100	15.8	13.4	39.6	31.2
50-59	206	100	12.6	16.0	34.0	37.4
Under 50	129	100	13.2	20.2	29.5	37.2

Table 10. Fertility-planning status among fertile couples, by index of economic security of the wife and couple.

socio-economic status. In support of this, attention may be called to Figures 8 and 9 (Tables 11-13) where distributions by fertility-planning status are shown for couples cross-classified by various measures of economic security and socio-economic status.<sup>13</sup> On the basis of these charts it seems clear that not much is left of the direct relation of fertility planning to economic security after socio-economic status is held constant. One might argue that, despite this, the factor of economic security is more meaningful than socio-economic status in so

<sup>13</sup> The "high," "medium," and "low" categories are as follows under each variable considered:

Variable Considered	High	Medium	Low
Husband's Average Annual Earnings Since Marriage	\$2,400 and Over	\$1,600-2,399	Under \$1,600
Net Worth of Couple	\$4,000 and Over	\$1,000-3,999	Under \$1,000
Index of Socio-Economic Status of the Couple	Under 20	20-39	40 and Over
Index of Economic Security of the Couple	80 and Over	60-79	Under 60

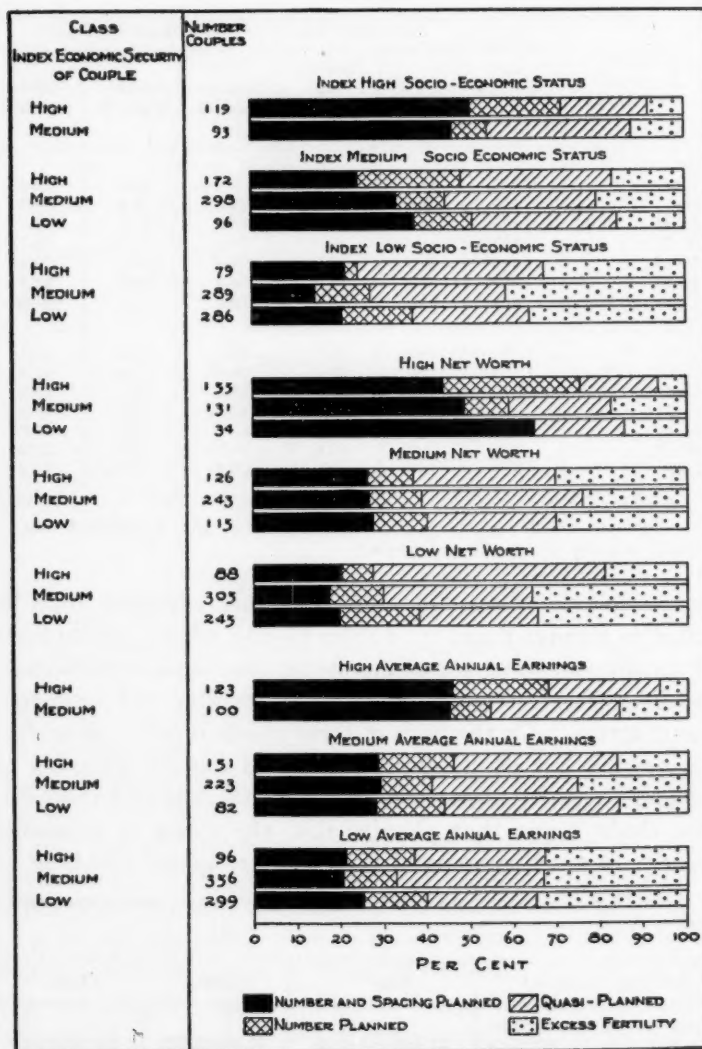


Fig. 8. Fertility-planning status by index of economic security of couples of given index of socio-economic status, net worth, and average annual earnings of the husband (see Tables 11-12).

Table 11. Fertility-planning status by index of economic security of the couple, by index of socio-economic status, and by net worth.

INDEX OF ECONOMIC SECURITY OF THE COUPLE	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
INDEX HIGH SOCIO-ECONOMIC STATUS (UNDER 20)						
High (80 and over)	119	100	50.4	21.0	20.2	8.4
Medium (60-79)	93	100	46.2	8.6	33.3	11.8
Low (under 60)	12	*				
INDEX MEDIUM SOCIO-ECONOMIC STATUS (20-39)						
High	172	100	24.4	23.8	34.9	16.9
Medium	298	100	33.2	11.1	35.6	20.1
Low	96	100	37.5	13.5	33.3	15.6
INDEX LOW SOCIO-ECONOMIC STATUS (40 AND OVER)						
High	79	100	21.5	2.5	43.0	32.9
Medium	289	100	14.2	12.8	31.1	41.9
Low	286	100	20.6	16.1	26.9	36.4
HIGH NET WORTH (\$4000 AND OVER)						
High	155	100	43.9	31.6	18.1	6.5
Medium	181	100	48.9	9.9	23.7	17.6
Low	34	100	64.7	0.0	20.6	14.7
MEDIUM NET WORTH (\$1000-3999)						
High	126	100	26.2	10.3	33.3	30.2
Medium	243	100	26.7	11.9	37.0	24.3
Low	115	100	27.8	11.3	30.4	30.4
LOW NET WORTH (UNDER \$1000)						
High	88	100	20.5	6.8	53.4	19.3
Medium	305	100	17.4	11.8	34.8	36.1
Low	245	100	19.2	18.8	27.3	34.7

\* Percentages not computed.

Table 12. Fertility-planning status by index of economic security of the couple and by wife's stated confidence in meeting future expenses, by husband's average annual earnings since marriage.

INDEX OF ECONOMIC SECURITY OF COUPLE	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fer- tility
HIGH AVERAGE ANNUAL EARNINGS (\$2,400 AND OVER)						
High (80 and over)	123	100	45.5	22.0	26.0	6.5
Medium (60-79)	100	100	45.0	9.0	30.0	16.0
Low (under 60)	13	*				
MEDIUM AVERAGE ANNUAL EARNINGS (\$1,600-2,399)						
High	151	100	28.5	17.2	37.7	16.6
Medium	223	100	29.1	11.2	34.1	25.6
Low	82	100	28.0	15.9	40.2	15.9
LOW AVERAGE ANNUAL EARNINGS (UNDER \$1,600)						
High	96	100	20.8	15.6	30.2	33.3
Medium	356	100	20.2	12.4	34.0	33.4
Low	299	100	25.1	14.7	25.1	35.1
Wife's Confidence in Meeting Future Expenses						
HIGH AVERAGE ANNUAL EARNINGS						
Very or Reasonably Sure	197	100	47.2	15.7	24.9	12.2
Undecided	25	100	36.0	28.0	24.0	12.0
Rather or Very Doubtful	14	*				
MEDIUM AVERAGE ANNUAL EARNINGS						
Very or Reasonably Sure	305	100	25.6	12.5	40.3	21.6
Undecided	131	100	37.4	16.0	28.2	18.3
Rather or Very Doubtful	20	100	20.0	25.0	30.0	25.0
LOW AVERAGE ANNUAL EARNINGS						
Very or Reasonably Sure	340	100	22.4	14.4	35.0	28.2
Undecided	316	100	24.1	12.7	25.0	38.3
Rather or Very Doubtful	95	100	15.8	14.7	28.4	41.1

\* Percentages not computed.

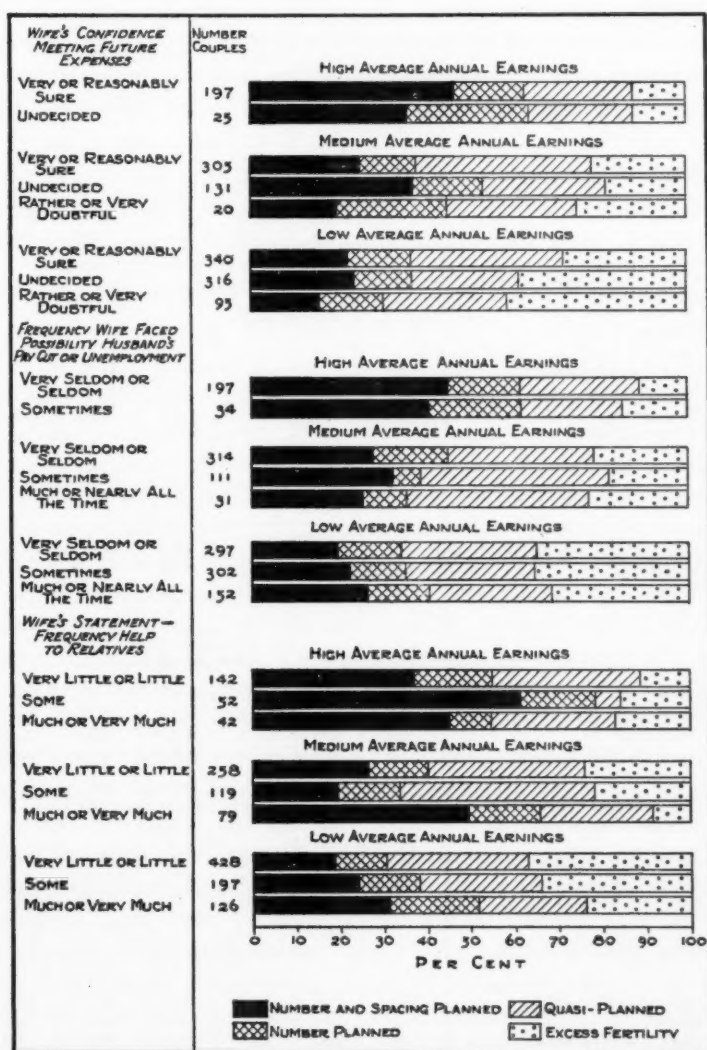


Fig. 9. Fertility-planning status by self-ratings of wives on confidence in meeting future expenses, frequency of facing possibility of husband's pay cut or unemployment, and frequency of financial help to relatives, by husband's average annual earnings since marriage (see Tables 12-13).



Table 13. Fertility-planning status by wife's statement regarding possibility of husband's pay cut or unemployment and frequency of financial help to relatives, by husband's average annual earnings since marriage.

	NUMBER OF COUPLES	PER CENT DISTRIBUTION BY PLANNING STATUS				
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility
<b>HIGH AVERAGE ANNUAL EARNINGS (\$2,400 AND OVER)</b>						
<i>Frequency Wife Faced Possibility Husband's Pay Cut or Unemployment</i>						
Very Seldom or Seldom	197	100	45.7	15.7	27.9	10.7
Sometimes	34	100	41.2	20.6	23.5	14.7
Much or Nearly All the Time	3	*				
<b>MEDIUM AVERAGE ANNUAL EARNINGS (\$1,600-2,399)</b>						
Very Seldom or Seldom	314	100	27.7	17.2	33.4	21.7
Sometimes	111	100	32.4	6.3	43.2	18.0
Much or Nearly All the Time	31	100	25.8	9.7	41.9	22.6
<b>LOW AVERAGE ANNUAL EARNINGS (UNDER \$1,600)</b>						
Very Seldom or Seldom	297	100	19.5	14.8	31.0	34.7
Sometimes	302	100	22.5	12.6	29.8	35.1
Much or Nearly All the Time	152	100	27.0	13.8	28.3	30.9
<b>Wife's Statement Frequency Financial Help to Relatives</b>						
<b>HIGH AVERAGE ANNUAL EARNINGS</b>						
Very Little or Little	142	100	37.3	17.6	33.8	11.3
Some	52	100	61.5	17.3	5.8	15.4
Much or Very Much	42	100	45.2	9.5	28.6	16.7
<b>MEDIUM AVERAGE ANNUAL EARNINGS</b>						
Very Little or Little	258	100	26.7	13.2	36.0	24.0
Some	119	100	19.3	14.3	44.5	21.8
Much or Very Much	79	100	49.4	16.5	25.3	8.9
<b>LOW AVERAGE ANNUAL EARNINGS</b>						
Very Little or Little	428	100	18.7	11.7	32.5	37.1
Some	197	100	24.4	13.7	27.9	34.0
Much or Very Much	126	100	31.0	20.6	24.6	23.8

\* Percentages not computed.

far as relation to family limitation is concerned. Nevertheless, whereas differences in fertility planning by economic security tend to disappear when socio-economic status is held constant, the direct relation of fertility planning to socio-economic status persists in strong fashion within each of the three groupings by economic security. This may mean that socio-economic status is associated with a wider gamut of cultural and psychological factors related to fertility planning than is economic security.

#### FERTILITY RATES BY ECONOMIC SECURITY AND FERTILITY-PLANNING STATUS

The second part of the hypothesis: "The greater the feeling of economic insecurity, . . . the smaller the planned families," may now be considered. First of all, it may be of interest to notice the gross distribution of the replies of the wives and husbands to the question "How much has . . . not being sure of a steady income . . . discouraged you and your husband (wife) from having more children?" Of the 1,444 wives, about 15 per cent checked "very much," 9 per cent "much," 24 per cent "some," 16 per cent "little," and 36 per cent "very little." (see Table 14). Except for the somewhat lower proportion of husbands replying "very much" (10 per cent) and the somewhat higher proportion (13 per cent) replying "much," the distribution of the replies of the husbands is much the same as that of the wives.

Since this hypothesis question was one of six used as the bases for the index of economic security of the couple, one would expect the distribution of the replies to differ systematically by index of economic security. Nevertheless, the magnitude of these differences is striking. Thus among couples scoring under 40 on the index of economic security, 71 per cent of the wives replied that they were discouraged "very much" from having more children because of economic insecurity, 10 per cent replied "much," and 19 per cent replied "some." None at all replied "little" or "very little." In contrast, among couples scoring highest (90+) on the index, 94 per cent of the wives re-

INDEX OF ECONOMIC SECURITY OF THE COUPLE	NUMBER OF COUPLES	PER CENT DISCOURAGED FROM HAVING MORE CHILDREN BY ECONOMIC INSECURITY					
		Total	Very Little or Not at All	Little	Some	Much	Very Much
TOTAL	1,444	100	35.5	16.2	24.4	9.3	14.5
	90+	109	100	93.6	6.4	0.0	0.0
	80-89	261	100	69.3	19.9	7.7	2.3
	70-79	356	100	39.6	23.6	25.0	8.4
	60-69	324	100	20.1	21.3	38.9	10.5
	50-59	236	100	8.5	8.5	29.2	19.1
	40-49	117	100	3.4	1.7	34.2	13.7
	Under 40	41	100	0.0	0.0	19.5	9.8
	REPLIES BY WIFE						
	REPLIES BY HUSBAND						
TOTAL	1,444	100	36.9	17.2	23.4	12.5	10.0
	90+	109	100	89.0	9.2	1.8	0.0
	80-89	261	100	62.8	20.3	13.0	2.7
	70-79	356	100	40.7	19.9	28.4	10.4
	60-69	324	100	22.8	23.1	29.3	15.1
	50-59	236	100	14.8	15.3	32.2	20.3
	40-49	117	100	13.7	1.7	21.4	29.1
	Under 40	41	100	4.9	4.9	12.2	12.2

Table 14. Replies by wives and husbands to question regarding extent to which they were discouraged from having more children by economic insecurity, by index of economic security of the couple.

plied "very little" and the remaining 6 per cent replied "little." (Table 14).

One would expect the replies to the hypothesis question to be influenced by both amount of insecurity and number of children the couple actually had. The relation of the replies to past fertility, however, is much less striking than the previously discussed relation to index of security. Thus the proportion of wives replying that they were discouraged "very much" from having more children because of economic insecurity is 22 per cent for the childless couples, 13 per cent for the one-child couples, 14 per cent for the two-child couples, 12 per cent for the three-child couples, and 16 per cent for those with four or

Table 15. Replies of wife to question regarding extent to which she was discouraged from having more children by economic insecurity, by number of live births, and fertility-planning status.

EXTENT DISCOURAGED	PER CENT					
	Total	Number and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Number and Spacing or Number Planned
NO-CHILD FAMILIES						
TOTAL	100.1	99.9	*	*	*	100.0
Very Little or Not at All	27.4	27.0	—	—	—	26.2
Little	11.9	8.7	—	—	—	11.5
Some	20.0	21.4	—	—	—	20.8
Much	19.3	20.6	—	—	—	20.0
Very Much	21.5	22.2	—	—	—	21.5
ONE-CHILD FAMILIES						
TOTAL	100.1	100.0	*	100.0	100.0	99.9
Very Little or Not at All	33.2	38.5	—	29.9	27.8	37.8
Little	18.9	17.6	—	20.4	18.5	17.7
Some	26.3	20.3	—	31.3	29.6	20.7
Much	8.8	13.5	—	4.1	3.7	14.6
Very Much	12.9	10.1	—	14.3	20.4	9.1
TWO-CHILD FAMILIES						
TOTAL	100.0	100.1	100.0	100.0	100.1	100.0
Very Little or Not at All	40.2	52.7	35.7	39.8	32.7	43.7
Little	14.3	16.1	15.9	11.4	15.8	16.0
Some	23.3	20.5	20.6	26.9	22.8	20.6
Much	7.8	6.3	10.3	8.5	5.0	8.4
Very Much	14.4	4.5	17.5	13.4	23.8	11.3
THREE-CHILD FAMILIES						
TOTAL	100.0	*	100.1	100.0	100.1	100.0
Very Little or Not at All	37.6	—	58.5	33.3	29.7	60.4
Little	15.4	—	9.8	15.9	16.9	11.3
Some	25.6	—	12.2	22.2	33.1	13.2
Much	9.0	—	5.0	14.3	8.5	3.8
Very Much	12.4	—	14.6	14.3	11.9	11.3
FOUR-OR-MORE-CHILD FAMILIES						
TOTAL	100.0	*	*	99.9	100.0	99.9
Very Little or Not at All	29.4	—	—	33.3	28.7	26.1
Much	21.2	—	—	25.6	17.6	30.4
Little	25.3	—	—	12.8	27.8	34.8
Some	8.2	—	—	12.8	7.4	4.3
Very Much	15.9	—	—	15.4	18.5	4.3
POPULATION BASES FOR ABOVE PERCENTAGES						
No-Child Families	135	126	4	4	1	130
One-Child Families	365	148	16	147	54	164
Two-Child Families	540	112	126	201	101	238
Three-Child Families	234	12	41	63	118	53
Four-or-More-Child Families	170	5	18	39	108	28

\* Percentages not computed.

more live births. The proportions of wives replying "very little" are 27, 33, 40, 38, and 29, respectively, by increasing number of live births. (Table 15).

One reason why the ranges are much wider by economic security score of the couple than by number of live births is the fact that the question regarding discouragement constitutes one of the components of the index. Another reason is suggested in the analysis by fertility-planning status. Among "excess fertility" couples—those that did least planning of past pregnancies—the proportion of wives replying that they were discouraged "very much" from having more children because of economic insecurity is 20 per cent for those with one live birth, 24 per cent for those with two, 12 per cent for those with three, and 19 per cent for those with four or more. There is the suggestion that among the last mentioned group particularly are some who replied that they were discouraged "very much" from having more children because of economic insecurity although they had patently done little in the past to regulate size of family.

Among the planned families ("number and spacing planned" and "number planned" combined) the proportion of wives replying that for reasons of economic insecurity they had been discouraged "very much" from having more children is 22 per cent for the childless couples, 9 per cent for those with one live birth, 11 per cent for those with two and three, and 4 per cent for those with four or more. The proportion replying that economic insecurity had discouraged higher fertility "very little or not at all" is 26 per cent for the childless couples, 38 for one-child couples, 44 for two-child couples, 60 for three-child couples, and 26 for those with four or more. (See Appendix III for further distributions among couples of given fertility-planning status but regardless of number of live births).

The wives and husbands in the Study were asked not only about the extent to which they had been discouraged from having children or more children by given factors represented under various hypotheses but were also asked to indicate which of the

various factors had been of first, second, and third importance in this connection. The complete distributions of factors of "first importance" are given in Table 16. It will be noted that about 11 per cent of the wives and 14 per cent of the husbands specified "not sure of a steady income." These figures probably understate the relative importance of "economic insecurity," however, because about 50 per cent of the wives and 43 per cent of the husbands specified "cost of children" as the factor of first importance in discouraging them from having more children. It seems possible that many of those who checked "cost of children" would have checked "not sure of a steady income" as the factor of first importance had the former category been omitted from the list of choices. Partial substantiation of this opinion is the fact that "not sure of a steady income" appears among the *three* most important reasons for 46.5 per cent of the wives and for about 51 per cent of the husbands.

In view of the preceding discussion, it may be surprising to

Table 16. Distribution of couples by replies of wife and husband to question regarding most important reason for not having children or more children.

MOST IMPORTANT REASON	NUMBER		PER CENT	
	Wives	Husbands	Wives	Husbands
TOTAL	1,444	1,444	100.0	100.0
Cost of Children	728	614	50.4	42.5
Not Sure of Steady Income	163	197	11.3	13.6
Not Being More Interested in Children	14	17	1.0	1.2
Parents Had Hard Time Rearing Children	16	22	1.1	1.5
Sharing House	31	19	2.1	1.3
Conformity with "Our Crowd"	1	4	0.1	0.3
Avoid Being Tied Down	27	32	1.9	2.2
A Feeling that Children Cause Parents to Lose Interest in Each Other	7	7	0.5	0.5
Poor Health of Self	239	16	16.6	1.1
Poor Health of Spouse	33	288	2.3	19.9
Poor Health of Children	19	12	1.3	0.8
Fear or Dread of Pregnancy and Childbirth <sup>1</sup>	83	89	5.7	6.2
Already Has Child of Each Sex	65	87	4.5	6.0
No Reason Given	18	40	1.2	2.8

<sup>1</sup> Wife's reply, fear for self; Husband's reply, fear for wife.

find that whereas a relatively high proportion of childless wives and husbands listed uncertainty of a steady income as the most important reason for not having children, the proportions are fairly uniform for parents of one, two, three, and four or more children. This factor was listed as the chief reason for not having children by 24 per cent of the childless wives and by 23 per cent of the childless husbands. It was listed by 9-11 per cent of the mothers and by 11-15 per cent of the fathers of specified numbers of children. The data are given in further detail by fertility-planning status in Table 17.

Table 17. Percentages of wives and husbands designating uncertainty of a steady income as the chief reason for failure to have children or more children, by fertility planning status and number of live births.

INFORMANT AND FERTILITY-PLANNING STATUS OF THE COUPLE	ALL COUPLES	NUMBER OF LIVE BIRTHS				
		0	1	2	3	4+
<i>Reports by Wives</i>						
All Couples	11.3	24.4	10.7	9.8	9.4	9.4
Number and Spacing Planned	11.9	26.2	8.8	1.8	*	*
Number Planned	11.7	*	*	9.5	22.0	*
Quasi-Planned	12.8	*	9.5	15.4	7.9	20.5
Excess Fertility	8.6	*	18.5	7.9	6.8	6.5
Number and Spacing or Number Planned	11.8	25.4	9.1	5.9	17.0	4.3
<i>Reports by Husbands</i>						
All Couples	13.6	23.0	14.8	12.2	10.7	12.4
Number and Spacing Planned	15.1	24.6	12.8	8.9	*	*
Number Planned	14.6	*	*	15.1	14.6	*
Quasi-Planned	12.8	*	11.6	12.9	15.9	12.8
Excess Fertility	12.6	*	24.1	10.9	6.8	14.8
Number and Spacing or Number Planned	15.0	23.8	14.6	12.2	13.2	0.0
POPULATION BASES FOR ABOVE PERCENTAGES						
<i>Number of Couples</i>						
All Couples	1,444	135	365	540	234	170
Number and Spacing Planned	403	126	148	112	12	5
Number Planned	205	4	16	126	41	18
Quasi-Planned	454	4	147	201	63	39
Excess Fertility	382	1	54	101	118	108
Number and Spacing or Number Planned	608	130	164	238	53	23

\* Percentage not computed.



Whereas data of the above type are of interest, those relating to actual fertility rates by various measures of economic security afford more rigorous tests of the hypothesis. For a point of departure we may refer briefly to results of a previous analysis of the interrelation of socio-economic status, fertility planning, and fertility.<sup>14</sup> This analysis indicated that "despite the relatively low fertility levels of the 'number and spacing planned' group, the fertility rates within this group tend to be directly, instead of inversely, associated with socio-economic status. Descending the scale by fertility-planning status, one finds a somewhat orderly transition from the direct to the inverse relation of fertility and socio-economic status."<sup>15</sup>

In the discussion of those findings, the following statement was made:

Adequate interpretation of the direct relation within the "number and spacing planned" group must await the analysis of data relating to other hypotheses. It should be pointed out, however, that the "number and spacing planned" group is more homogeneous than any other considered here with respect to regularity of contraceptive practice. This group practiced contraception effectively, stopping only for planned pregnancies. In consequence, the factors of differential prevalence and effectiveness of contraceptive practice—the factors underlying the general inverse relation of fertility to socio-economic status—are removed. It seems likely that the removal of these factors serves to unmask the influence of other factors, such as feelings of economic security, which may be directly associated both with socio-economic status and desire for children.<sup>16</sup>

An indication that the above is indeed the case is afforded by the analysis of fertility in relation to various measures of economic security and fertility-planning status in Figures 10-19.

<sup>14</sup> Kiser, Clyde V. and Whelpton, P. K.: *Social and Psychological Factors Affecting Fertility. IX. Fertility Planning and Fertility Rates by Socio-Economic Status. The Milbank Memorial Fund Quarterly*, April, 1949, xxvii, No. 2, pp. 222-241 (Reprint pp. 393-412).

<sup>15</sup> *Ibid.*, pp. 223-224 (Reprint pp. 394-395).

<sup>16</sup> *Ibid.*, pp. 237-238 (Reprint pp. 408-409).

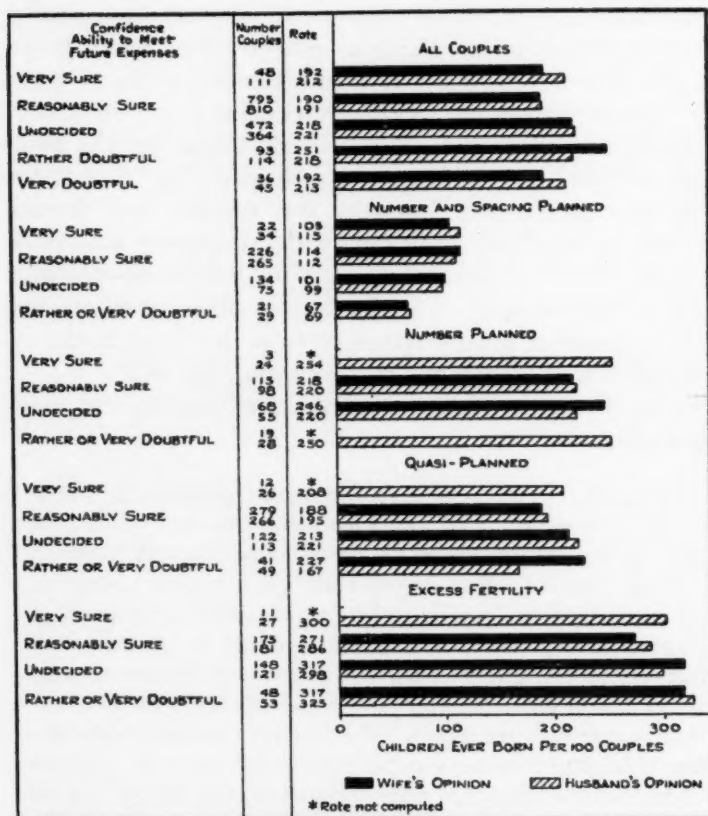


Fig. 10. Fertility rates by fertility-planning status and self-ratings of wives and husbands on confidence in meeting future expenses.

In these charts fertility rates<sup>17</sup> are presented by various measures of economic security for all couples and for couples of given fertility-planning status. As in the previous charts, the scales purport to range from economic security to economic insecurity.

The point of outstanding significance in Figures 10-19 is the direct relation of fertility to economic security among couples

<sup>17</sup> The fertility rates are not standardized for age of wife because the data are restricted to couples married 12-15 years with wife under 30 and husband under 40 at marriage.

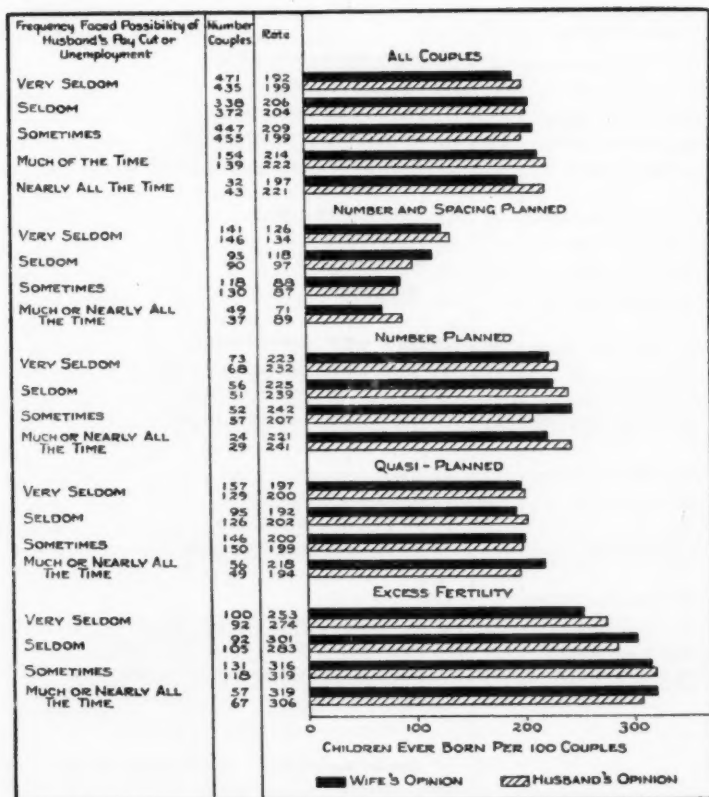


Fig. 11. Fertility rates by fertility-planning status and self-ratings of wives and husbands on frequency of facing possibility of husband's pay cut or unemployment.

in the "number and spacing planned" group. The fertility of the "number and spacing planned" group is low in comparison with that of couples of other fertility-planning status, but within this group it tends to step up rather sharply and consistently with strengthening of economic security. This type of relation is found with all except one of the various measures of economic security, and the results are essentially the same regardless of whether the criteria of security relate to the wife or to the husband. The exception occurs in the use of replies

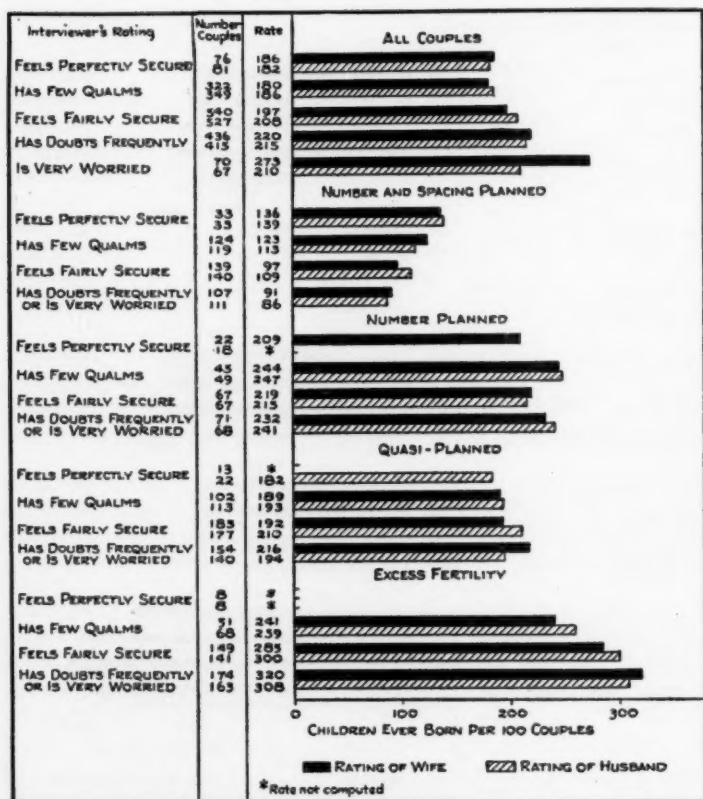


Fig. 12. Fertility rates by fertility-planning status and interviewer's ratings of wives and husbands on feeling of economic security.

to the question concerning extent of "special expenses that have put a great strain on the family pocketbook" as the measure of economic security (Figure 13). As already noted, this deviant type of relationship with fertility seems to indicate only that the more children a family has the more it is subjected to special expenses.

The next point to be noted is the transition from the direct to the inverse relation of fertility to economic security as one descends the fertility-planning scale. More specifically, the

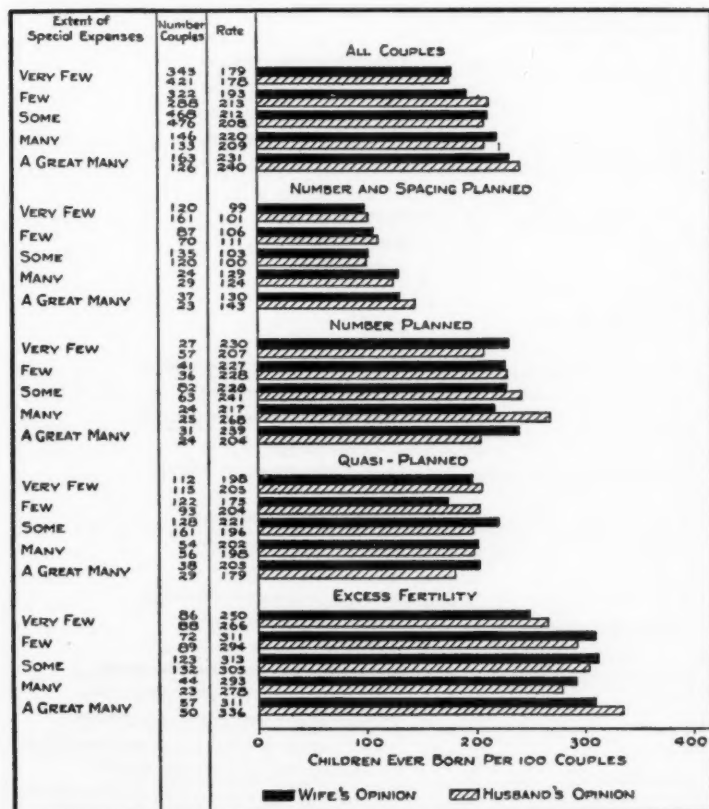


Fig. 13. Fertility rates by fertility-planning status and self-ratings of wives and husbands on extent of special expenses arising from sickness, accidents, etc.

most frequent pattern depicted in Figures 10-19 is that of a direct relation of fertility to security within the "number and spacing planned" group, little or mixed relation in the "number planned" and "quasi-planned" groups, and an inverse relation of fertility to economic security within the "excess fertility" group. This situation holds in the classification by index of economic security of the couple (Figure 18) and by the jointly considered indices of economic security of the wife and husband.

The transition from the direct to the inverse relation prob-

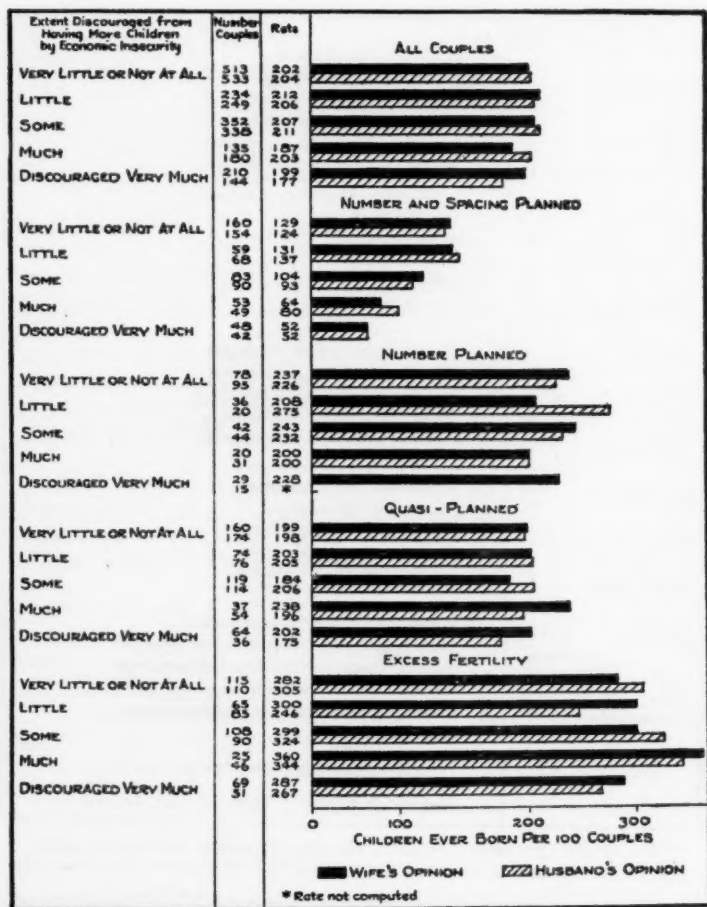


Fig. 14. Fertility rates by fertility-planning status and self-ratings of wives and husbands on extent of discouragement from having more children because of economic insecurity.

ably reflects a two-way relation between economic insecurity and fertility. As already stated, either of the two variables may be the cause or effect of the other. One couple might limit family size because of insecurity. Another might be insecure partly because of the large family. It is virtually impossible to

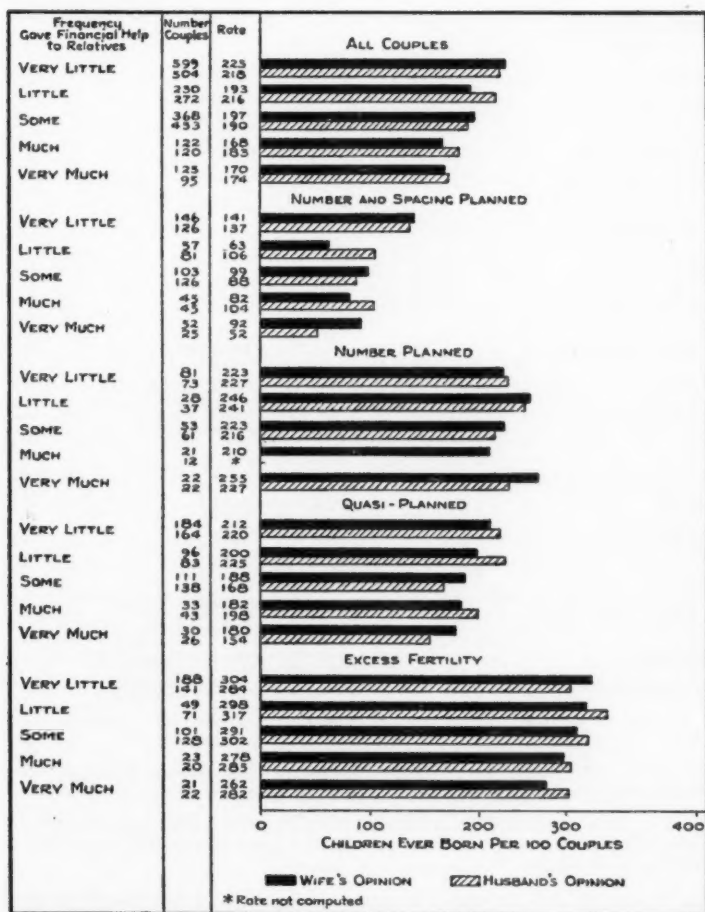


Fig. 15. Fertility rates by fertility-planning status and self-ratings of wives and husbands on frequency of financial help given to relatives.

separate the determinative and selective aspects in the relation of security to fertility. Nevertheless, it seems reasonable to believe that among couples having fertility under control the causal connection tends to run from security to fertility, whereas among those who have had more pregnancies than



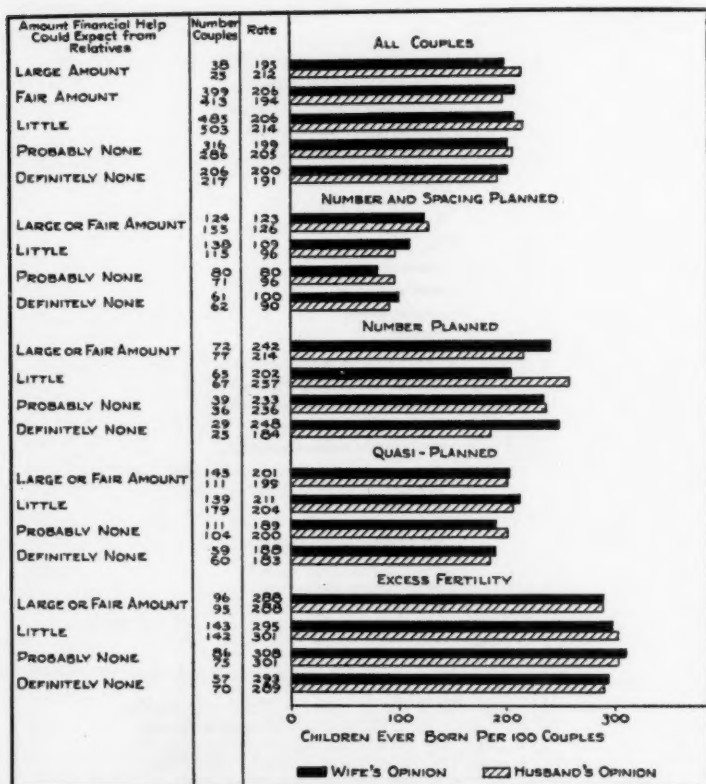


Fig. 16. Fertility rates by fertility-planning status and self-ratings of wives and husbands on amount of financial help that could be expected from relatives in an emergency.

they wanted, the relation tends to run from high fertility and probably concomitant poverty to economic insecurity.

Although the direct relation of fertility to economic security tends to be found only within the "number and spacing planned" group and not within the "number planned" group, it holds up with fair consistency when these two fertility-planning groups are consolidated. This is mentioned because it means that the second part of the hypothesis (relating to all "planned families") actually is confirmed. Nevertheless, it is

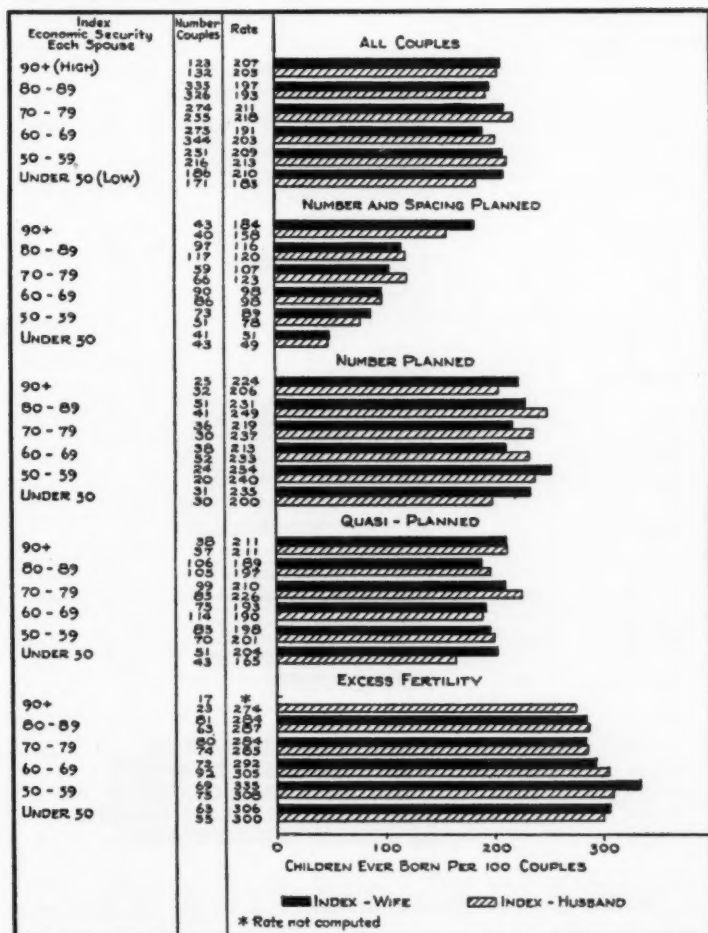


Fig. 17. Fertility rates by fertility-planning status and index of economic security of each spouse.

important to remember that the "number and spacing planned" group is responsible for the verification.

*The Role of Childlessness.* Much of the direct relation of fertility to economic security within the "number and spacing planned" group can be explained by a marked association be-

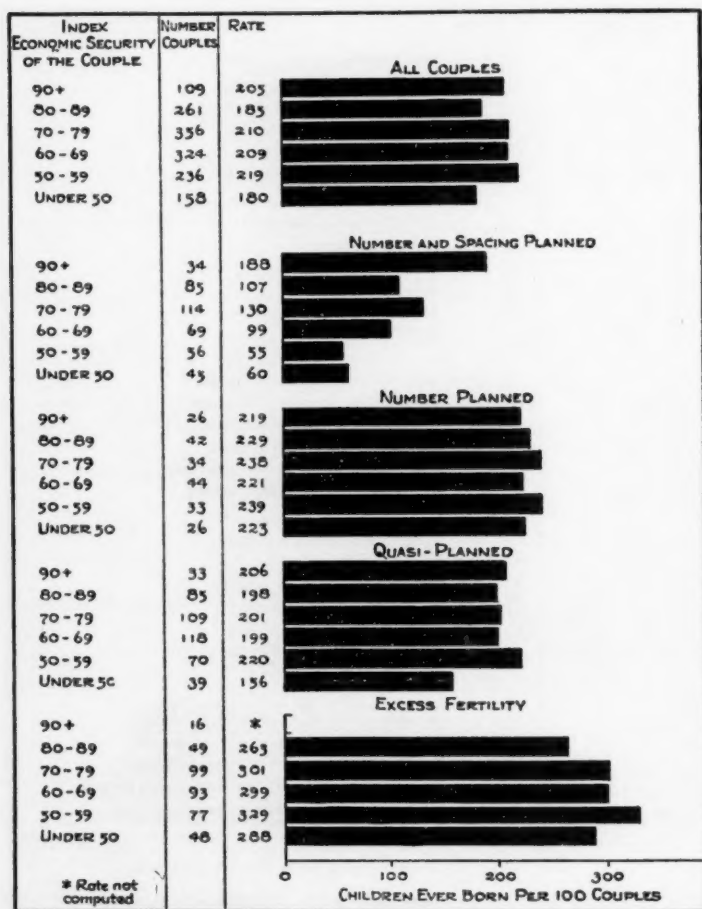


Fig. 18. Fertility rates by fertility-planning status and index of economic security of the couple.

tween economic insecurity and childlessness. It will be recalled that "relatively sterile" couples were eliminated from the Study and that "never pregnant" couples were included only if they had practiced contraception regularly and continuously since marriage. It will also be recalled that by definition these "never pregnant" couples were assigned exclusively to the

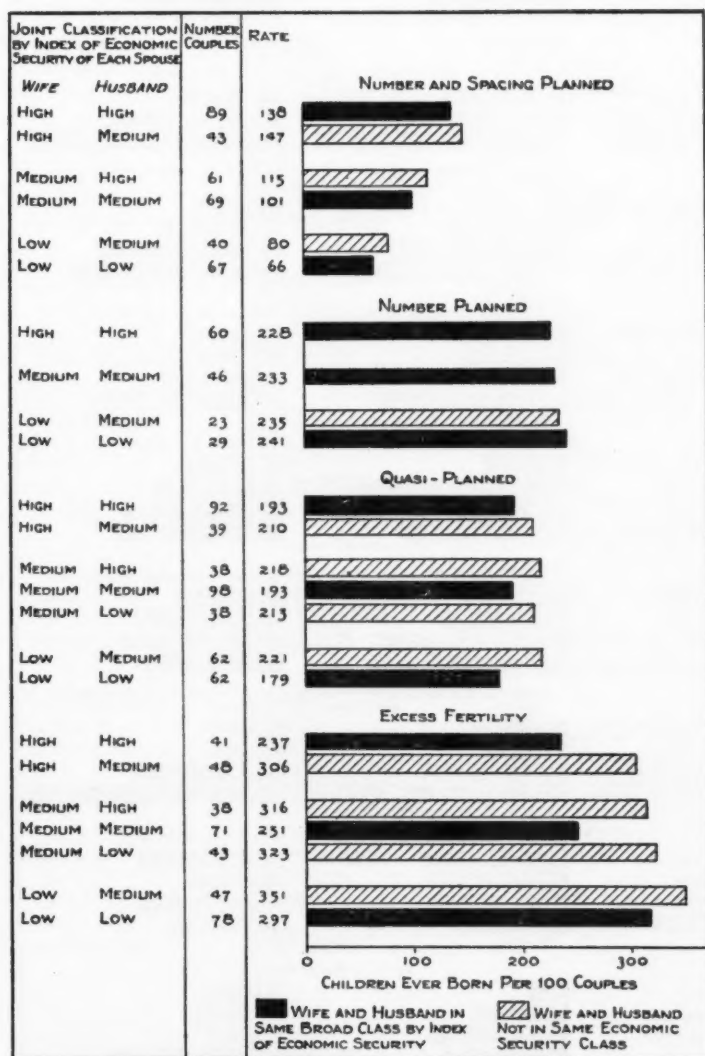


Fig. 19. Fertility rates by fertility-planning status and indices of economic security of the wife and husband jointly considered.

"number and spacing planned" group. Hence the childless

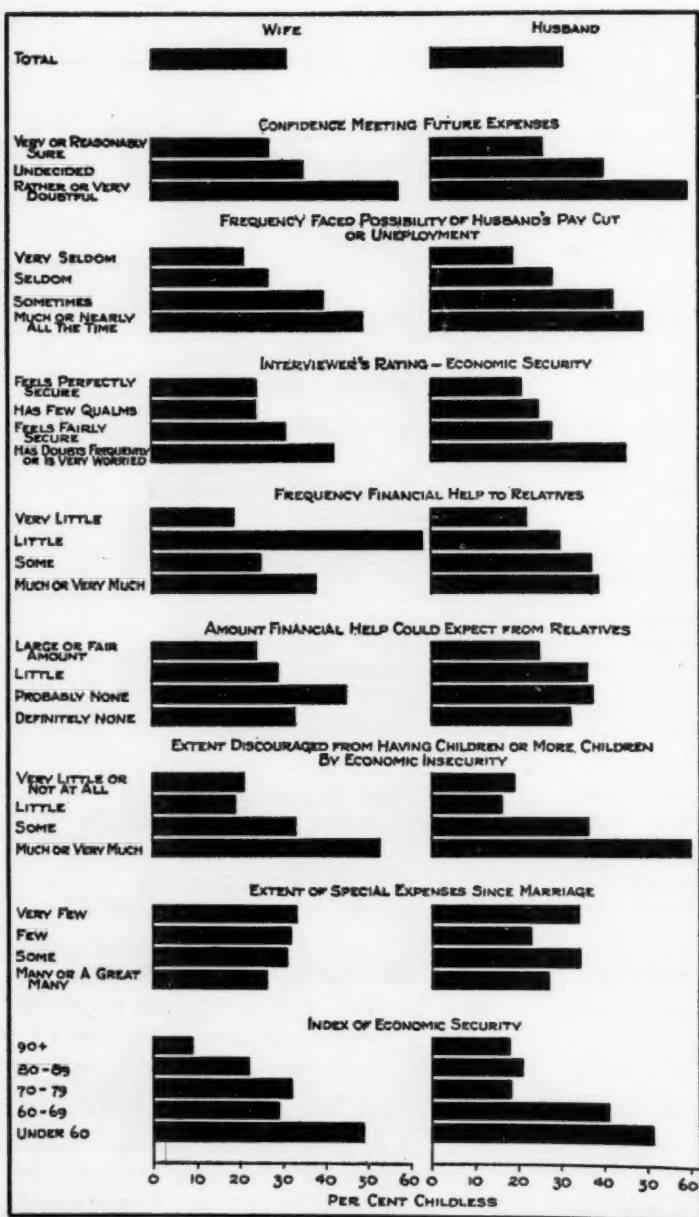


Fig. 20. Per cent childless among "number and spacing planned" couples according to various indicators of economic security of the wife and husband (see Table 18).

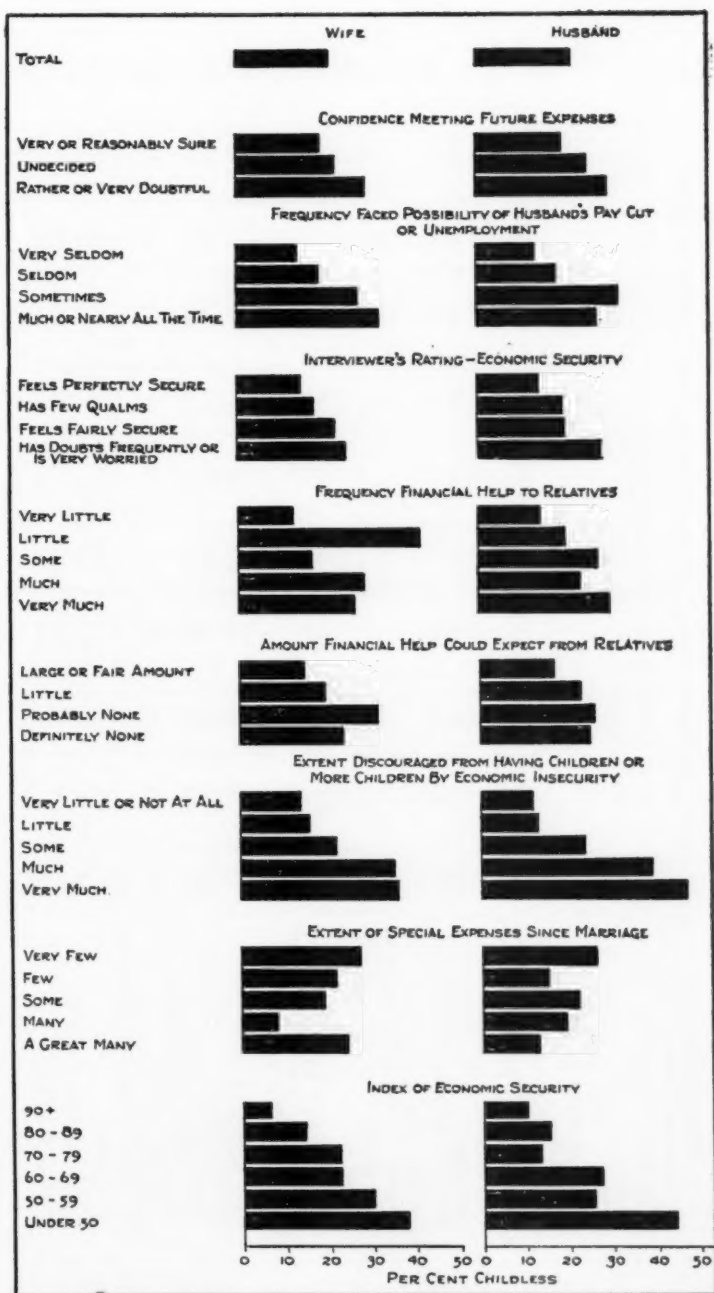


Fig. 21. Per cent childless among all "planned families" according to various indicators of economic security of the wife and husband (see Table 19).

Table 18. The fertility of, and incidence of childlessness among, "number and spacing planned" couples, by various measures of economic security.

MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES				CHILDREN EVER BORN PER 100 COUPLES				PER CENT	
	All Couples		Fertile Couples		All Couples		Fertile Couples		Childless	
	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband
<i>Confidence Meeting Future Expenses</i>										
Very or Reasonably Sure	248	299	181	220	113	112	155	152	27.0	26.4
Undecided	134	75	87	45	101	99	155	164	35.1	40.0
Rather or Very Doubtful	21	29	9	12	67	69	*	*	57.1	58.6
<i>Frequency Faced Possibility of Husband's Pay Cut or Unemployment</i>										
Very Seldom	141	146	112	118	126	134	159	166	20.6	19.2
Seldom	95	90	69	65	118	97	162	134	27.4	27.8
Sometimes	118	130	71	75	88	87	146	151	39.8	42.8
Much or Nearly All the Time	49	37	25	19	71	89	140	*	49.0	48.6
<i>Interviewer's Rating—Economic Security</i>										
Feels Perfectly Secure	33	33	25	28	136	139	180	177	24.2	21.2
Has Few Qualms	124	119	94	89	123	113	162	152	24.2	25.2
Feels Fairly Secure	139	140	96	101	97	109	141	151	30.9	27.9
Has Doubt Frequently or Is Very Worried	107	111	62	61	91	86	156	156	42.1	45.0
<i>Frequency Financial Help to Relatives</i>										
Very Little	146	126	119	98	141	137	173	176	18.5	22.2
Little	57	81	21	57	63	106	171	151	63.2	29.6
Some	103	126	77	79	99	88	132	141	25.2	37.8
Much or Very Much	97	70	60	43	88	86	142	140	38.1	38.6



TABLE 18—(Continued)

MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES				CHILDREN EVER BORN PER 100 COUPLES				PER CENT	
	All Couples		Fertile Couples		All Couples		Fertile Couples			
	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband
<i>Amount Financial Help Could Expect From Relatives</i>										
Large or Fair Amount	124	155	94	116	123	126	163	168	24.2	25.2
Little	138	115	98	74	109	96	154	149	29.0	35.7
Probably None	80	71	44	45	80	96	145	151	45.0	36.6
Definitely None	61	62	41	42	100	90	149	133	32.8	32.3
<i>Extent Discouraged From Having More Children by Economic Insecurity</i>										
Very Little or Not at All	160	154	126	125	129	124	164	153	21.3	18.8
Little	59	68	48	57	131	137	160	163	18.6	16.2
Some	83	90	56	58	104	93	154	145	32.5	35.6
Much or Very Much	101	91	47	37	58	67	126	165	53.5	59.3
<i>Extent Special Expenses Since Marriage</i>										
Very Few	120	161	80	106	99	101	149	153	33.3	34.2
Few	87	70	59	54	106	111	156	144	32.2	22.9
Some	135	120	93	79	103	100	149	152	31.1	34.2
Many or a Great Many	61	52	45	38	130	133	176	182	26.2	26.9
<i>Index Economic Security Each Spouse</i>										
90+	43	40	39	83	184	158	203	191	9.3	17.5
80-89	97	117	76	93	116	120	149	151	21.6	20.5
70-79	59	66	40	54	107	123	158	150	32.2	18.2
60-69	90	86	64	51	98	98	138	165	28.9	40.7
Under 60	114	94	58	46	75	65	148	133	49.1	51.1

\* Rate not computed.

Table 19. The fertility of, and incidence of childlessness among, "number and spacing or number planned" couples, by various measures of economic security.

MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES				CHILDREN EVER BORN PER 100 COUPLES				PER CENT	
	All Couples		Fertile Couples		All Couples		Fertile Couples		Childless	
	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband
<i>Confidence Meeting Future Expenses</i>										
Very or Reasonably Sure	366	421	295	340	147	145	182	180	19.4	19.2
Undecided	202	130	155	98	150	150	195	199	23.3	24.6
Rather or Very Doubtful	40	57	28	40	143	158	204	225	30.0	29.8
<i>Frequency Faced Possibility of Husband's Pay Cut or Unemployment</i>										
Very Seldom	214	214	183	186	159	165	186	190	14.5	13.1
Seldom	151	141	123	116	158	148	193	180	18.5	17.7
Sometimes	170	187	123	128	135	124	187	180	27.6	31.6
Much or Nearly All the Time	73	66	49	48	121	156	180	215	32.9	27.3
<i>Interviewer's Rating—Economic Security</i>										
Feels Perfectly Secure	55	51	47	44	165	161	194	186	14.5	13.7
Has Few Qualms	169	168	139	136	155	152	188	188	17.8	19.0
Feels Fairly Secure	206	207	159	166	137	143	177	179	22.8	19.8
Has Doubts Frequently or is Very Worried	178	179	133	129	147	145	197	201	25.3	27.9
<i>Frequency Financial Help to Relatives</i>										
Very Little	227	199	198	171	170	170	195	198	12.8	14.1
Little	85	118	49	94	124	148	214	186	42.4	20.3
Some	156	187	130	136	141	130	169	179	16.7	27.3
Much	66	57	47	44	123	137	172	177	28.8	27.3
Very Much	74	47	54	33	141	134	193	191	27.0	29.8

TABLE 10—(Continued)

MEASURE OF ECONOMIC SECURITY	NUMBER OF COUPLES				CHILDREN EVER BORN PER 100 COUPLES				PER CENT	
	All Couples		Fertile Couples		All Couples		Fertile Couples		Childless	
	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband	Wife	Husband
<i>Amount Financial Help Could Expect From Relatives</i>										
Large or Fair Amount	196	232	166	193	167	155	197	187	15.3	16.8
Little	203	182	163	141	139	155	173	200	19.7	22.6
Probably None	119	107	81	79	130	143	191	194	31.9	26.2
Definitely None	90	87	68	65	148	117	196	157	24.4	25.3
<i>Extent Discouraged From Having More Children by Economic Insecurity</i>										
Very Little or Not at All	238	249	204	220	165	163	192	185	14.3	11.6
Little	95	88	80	77	160	168	190	192	15.8	12.6
Some	125	134	98	102	150	139	192	182	21.6	23.9
Much	73	80	47	49	101	126	157	206	35.6	38.8
Very Much	77	57	49	30	118	98	186	187	36.4	47.4
<i>Extent Special Expenses Since Marriage</i>										
Very Few	147	218	107	161	123	128	169	174	27.2	26.1
Few	128	106	100	90	145	151	185	178	21.9	15.1
Some	217	183	175	142	150	149	186	192	19.4	22.4
Many	48	54	44	44	173	191	189	234	8.3	18.5
A Great Many	68	47	52	41	179	174	235	200	23.5	12.8
<i>Index Economic Security Each Spouse</i>										
90+	68	72	64	65	199	179	211	198	5.9	9.7
80-89	148	158	127	134	156	153	182	181	14.2	15.2
70-79	95	96	74	84	149	158	192	181	22.1	12.5
60-69	128	138	100	101	134	149	169	203	21.9	26.8
50-59	97	71	68	53	130	124	185	166	29.9	25.4
Under 50	72	73	45	41	131	111	209	198	37.5	43.8

Table 20. The fertility of, and incidence of childlessness among, "number and spacing planned" and "number and spacing or number planned" couples, by index of economic security of the couple and of the wife and husband jointly considered.

INDEX OF ECONOMIC SECURITY	NUMBER AND SPACING PLANNED						NUMBER AND SPACING PLANNED OR NUMBER PLANNED					
	Number of Couples			Children Ever Born Per 100 Couples			Number of Couples			Children Ever Born Per 100 Couples		
	All Couples	Fertile Couples	Per Cent Childless	All Couples	Fertile Couples	Per Cent Childless	All Couples	Fertile Couples	Per Cent Childless	All Couples	Fertile Couples	Per Cent Childless
<i>Summary Index (Couple)</i>												
90+	34	30	11.8	188	213	11.8	60	56	6.7	202	216	6.7
80-89	85	68	20.0	107	134	20.0	127	110	13.4	147	170	13.4
70-79	114	89	21.9	130	167	21.9	148	123	16.9	155	243	16.9
60-59	69	47	31.9	99	145	31.9	113	87	23.0	146	190	23.0
Under 60	101	43	57.4	57	135	57.4	160	102	36.3	122	191	36.3
<i>Summary Index (Joint)</i>												
<i>Wife</i>												
High	89	76	14.6	138	162	14.6	149	136	8.7	174	191	8.7
High	43	36	16.3	147	175	16.3	56	49	12.5	168	192	12.5
Medium	8	3	*	*	*	*	11	6	*	*	*	*
Low	61	45	26.2	115	156	26.2	71	55	22.5	128	165	22.5
High	69	48	30.4	101	146	30.4	115	92	20.0	154	192	20.0
Medium	19	11	*	*	*	*	37	27	27.0	116	159	27.0
Low	7	5	*	*	*	*	10	8	*	*	*	*
High	40	21	47.5	80	132	47.5	63	44	30.2	137	195	30.2
Medium	67	32	52.2	66	138	52.2	96	61	36.5	119	187	36.5
Low												

\* High = 80+; medium = 60-79; low = under 60.

\* Rate not computed.

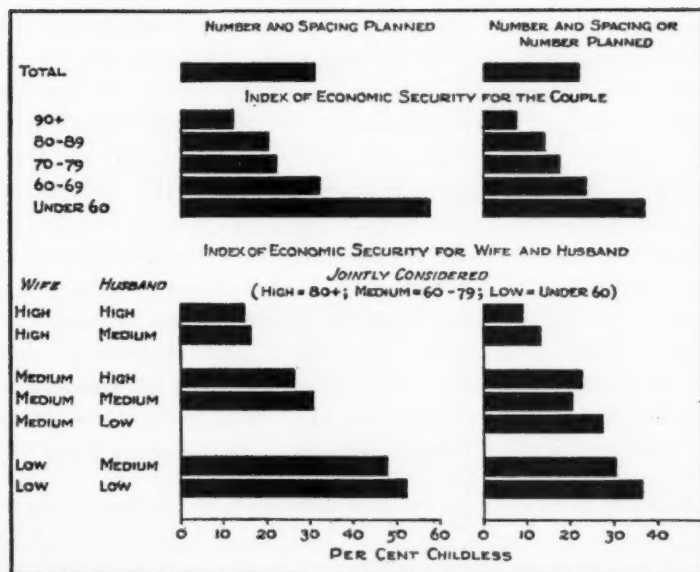


Fig. 22. Per cent childless among "number and spacing planned" couples and among all "planned families" by index of economic security of the couple and of the wife and husband jointly considered (*see* Table 20).

couples in the Study are in the main voluntarily childless and are restricted mainly to the "number and spacing planned" group. The few exceptions in each instance are couples having no live birth but one or more pregnancies terminating in stillbirths or unintentional abortions.

The marked tendency toward an increase in childlessness with lessening of economic security is shown with all of the available criteria of economic security except "special expenses." (Figures 20-22, Tables 18-20). As indicated in Figure 22, only 12 per cent of the "number and spacing planned" couples scoring 90 or over on the index of economic security are childless. The proportion steps up consistently with decreasing score and 57 per cent of those scoring under 60 are childless. Among all "planned families," the corresponding percentages are 7 and 36.<sup>18</sup>

<sup>18</sup> Chi squares of the distribution of childlessness by index of economic security

(Continued on page 94)

The heavy role of childlessness in the direct relation of fertility to economic security is made evident when fertility rates by various measures of economic security are shown for "all couples" and for "fertile couples" within the "number and spacing planned" group (Figure 23, Table 18) and within the total group of "planned families" (Figure 24, Table 19). The situation may be summarized by reference to Figure 25 (Table 20) where the classifications are by index of economic security of the couple and of the wife and husband jointly considered. Within the "number and spacing planned" group the direct relation of fertility to index of economic security persists when the data are restricted to fertile couples but the relative spread of the rates is reduced considerably. Within the total group of "planned families" the direct relation disappears when the

of the couple indicate that association of the two variables is "very significant" statistically for both the "number and spacing planned" group and the total group of "planned families." Within both groups departure from uniformity of distribution of childlessness by index of economic security is significant at the 1 per cent level. As indicated below, however, when differences between given pairs of economic-security classes are tested, significance at the 1 per cent level is found only in comparisons between the couples of lowest index of security (and highest proportion childless) and certain other groups. Most of the differences between groups of higher index fail to be significant at the 5 per cent level. The small numbers (n) apparently account for much of this. The numbers of cases in the uninflated sample were used as population bases in the computation of chi squares and tests of inter-class differences.

SIGNIFICANCE OF DIFFERENCES BETWEEN ECONOMIC-SECURITY CLASSES WITH RESPECT TO PROPORTIONS CHILDLESS AMONG "NUMBER AND SPACING PLANNED" COUPLES (UPPER RIGHT) AND AMONG ALL "PLANNED FAMILIES" (LOWER LEFT).						NUMBER OF CASES (N) IN UNINFLATED SAMPLE	
						Number and Spacing Planned	All Planned Families
Index of Economic Security	90+	80-89	70-79	60-69	Under 60		
90+		c	c	c	a	21	34
80-89	c		c	c	a	45	68
70-79	c	c		c	a	58	81
60-69	b	c	c		b	41	66
Under 60	a	a	a	c		56	88

a = Significant at .01 level.

b = " " .05 "

c = Not " " .05 "

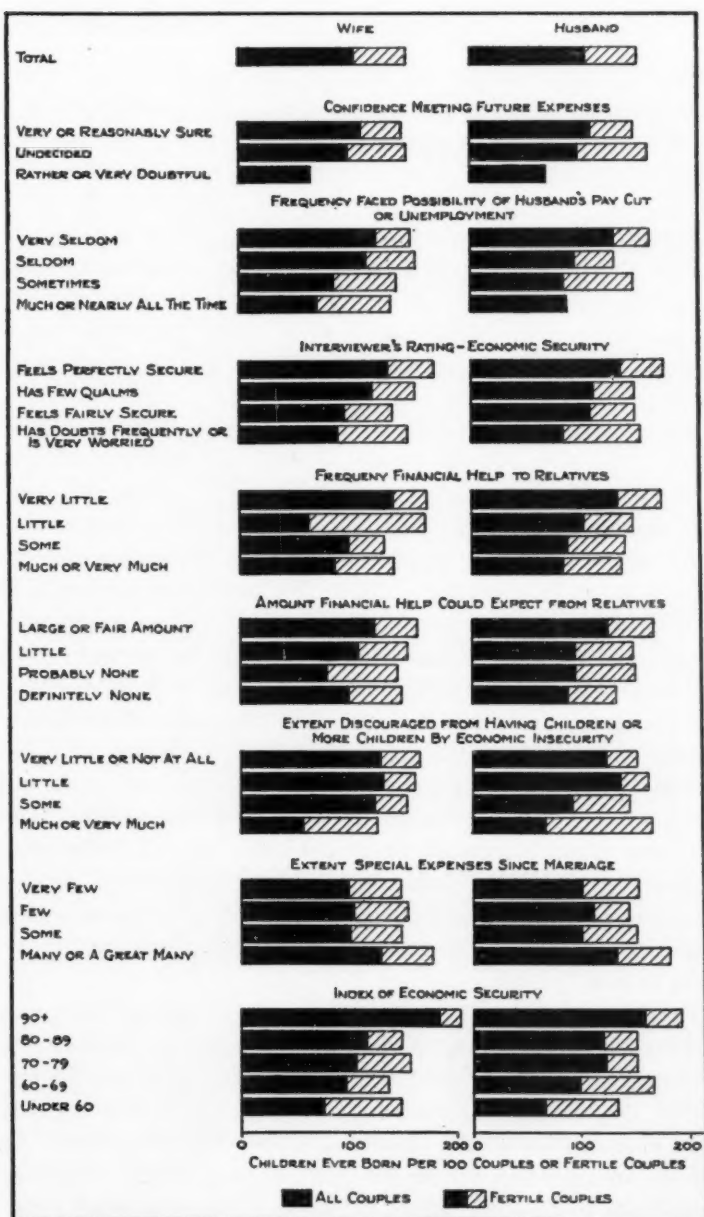


Fig. 23. Fertility rates by various measures of economic security of the wife and husband among "all couples" and "fertile couples" classified as "number and spacing planned" (see Table 18).



data are restricted to fertile couples. We have previously noted that "number and spacing planned" couples are responsible for the direct relation between economic security and fertility among "planned families." We may now note that the *childless* couples in the "number and spacing planned" group are responsible for the confirmation of the hypothesis.

The foregoing is not intended to play down the impact of economic insecurity but rather to describe an important source of its operation. The sharp increase of voluntary childlessness with decrease of economic security is a matter of importance in itself.

*Fertility by Economic Security and Planning Status Within Groups of Specific Socio-Economic Status.* In view of the relation of economic security to socio-economic status, the question arises as to whether the direct relation of fertility to economic security persists within groups fairly homogeneous with respect to socio-economic status. The sample is too small to provide a definitive answer to this question. For a really adequate test one would need sufficiently large numbers in each cell to yield reliable fertility rates after rather detailed cross-classifications are made by economic security and socio-economic status within given fertility-planning groups. In this instance, even when broad subdivisions (high, medium, and low) are applied to measures of both economic security and socio-economic status, many of the cells are not sufficiently represented to yield reliable fertility rates. However, several measures of both economic security and socio-economic status are used and this makes it possible to judge consistency of results to some extent.

In three of the six types of cross-classifications shown in Tables 21-23 the index of economic security is used as the criterion for economic security and the index of socio-economic status, net worth, and husband's average annual earnings are used successively as the criteria of socio-economic status. In the remaining three, the replies of wives to questions regarding confidence in meeting future expenses, frequency faced possi-

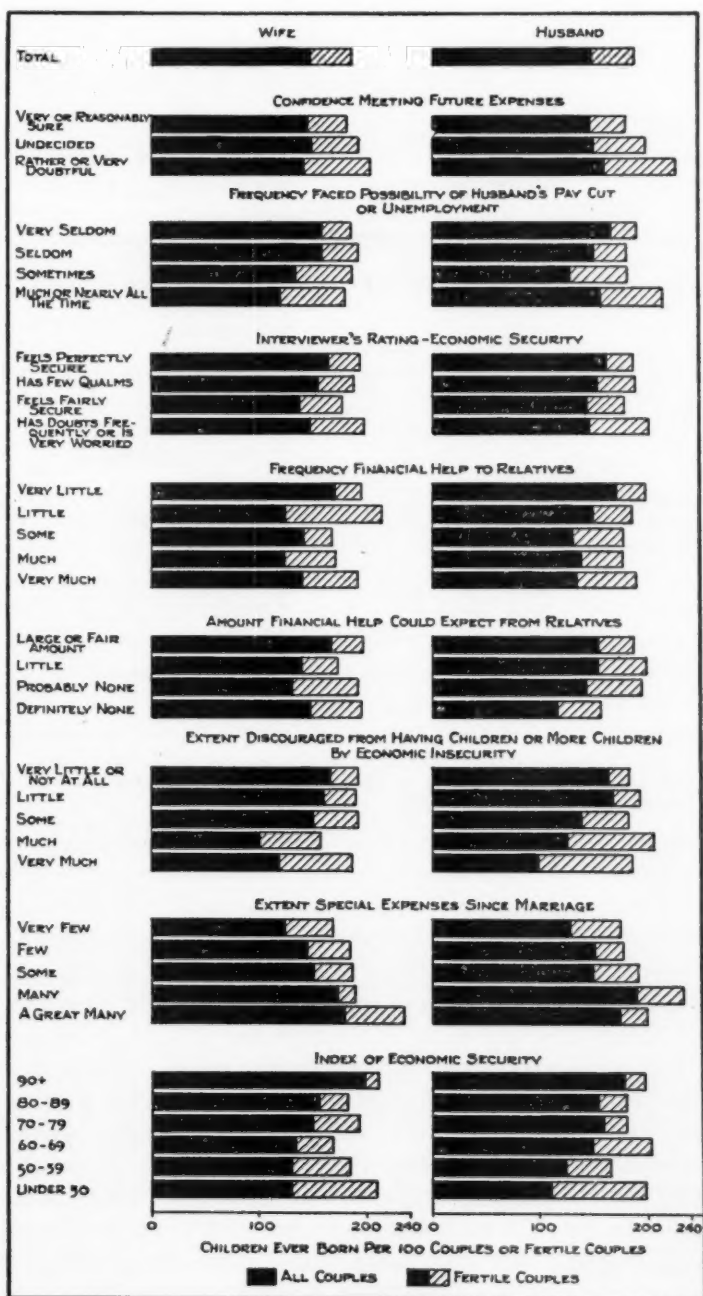


Fig. 24. Fertility rates by various indicators of economic security of the wife and husband among "all couples" and "fertile couples" in "planned families" (see Table 19).

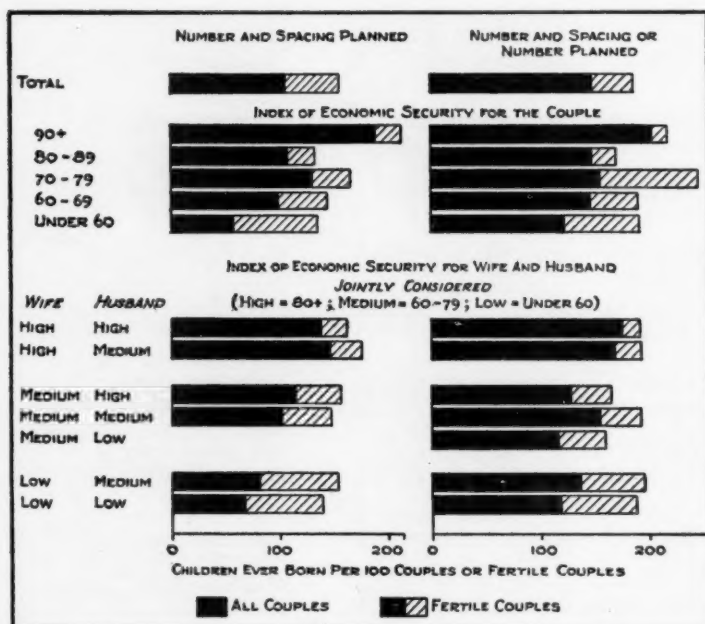


Fig. 25. Fertility rates by indices of economic security among "all couples" and "fertile couples" classified as "number and spacing planned" and as "planned families" (see Table 20).

bility of husband's pay cut or unemployment, and frequency of financial help to relatives are used successively as measures of security and husband's average annual earnings is used in each case as the measure of socio-economic status. In addition, Appendix VI presents fertility rates for "number and spacing planned" couples by index of economic security and by education, occupation, and other characteristics.

Despite the gaps in the data and despite certain irregularities which occur mainly in the groups of "medium" index of socio-economic status, net worth, and husband's average annual earnings, the direct relation of fertility to economic security is the most frequent pattern exhibited by the various cross-classifications. The solid black portions of the bars in Figures 26-28 indicate that this holds true for the total group of

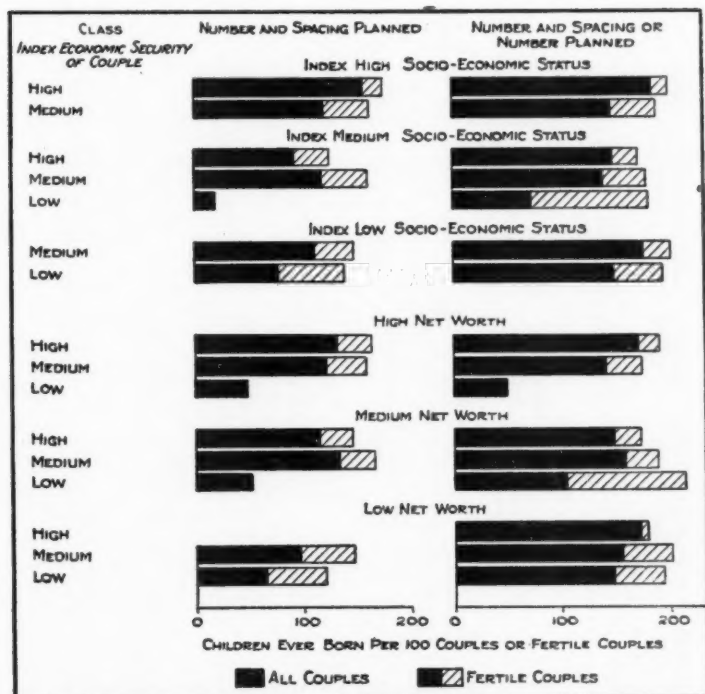


Fig. 26. Fertility rates by index of economic security among "all couples" and "fertile couples" classified as "number and spacing planned" and as "planned families" and of given index of socio-economic status and net worth (see Table 21).

"planned families" as well as for the "number and spacing planned" group. Thus, it is of interest to find that whereas the direct relation of fertility-planning status to economic security has little existence apart from socio-economic status, the direct relation of size of planned family to feeling of economic security appears to be a reality with or without the influence of socio-economic status.<sup>19</sup>

<sup>19</sup> Although it has been noted that Figures 10-19 reveal little relation between fertility and economic security among either "number planned" or "quasi-planned" families before any subdivision is made by socio-economic status, a side analysis suggests at least some emergence of a direct relation after socio-economic status is "controlled." Also, although the inverse relation of fertility to economic security (Continued on page 104)

Table 21. Fertility rates for all couples and fertile couples, and percentages childless, by index of economic security of the couple, by index of socio-economic status and by net worth. Data given for "number and spacing planned" and for "number and spacing or number planned" groups.

INDEX OF ECONOMIC SECURITY OF COUPLES	NUMBER AND SPACING PLANNED						NUMBER AND SPACING PLANNED OR NUMBER PLANNED						Per Cent Childless	
	Number of Couples			Children Ever Born Per 100 Couples			Per Cent Childless	Number of Couples			Children Ever Born Per 100 Couples			
	All Couples	Fertile Couples	All Couples	All Couples	Fertile Couples	All Couples		Fertile Couples	All Couples	Fertile Couples				
INDEX HIGH SOCIO-ECONOMIC STATUS (UNDER 20)														
High (80 and Over) Medium (60-79) Low (Under 60)	60	54	158	176	10.0	85	79	185	199	7.1				
	43	32	121	163	25.6	51	40	147	188	21.6				
	6	2	*	*	*	*	6	2	*	*	*			
INDEX MEDIUM SOCIO-ECONOMIC STATUS (20-39)														
High Medium Low	42	31	93	126	26.2	83	72	149	172	13.3				
	99	73	119	162	26.3	132	102	138	178	22.7				
	36	7	19	*	80.6	49	20	73	180	59.2				
INDEX LOW SOCIO-ECONOMIC STATUS (40 AND OVER)														
High Medium Low	17	13	*	*	*	19	15	*	*	*				
	41	31	112	148	24.4	78	68	176	201	12.8				
	59	34	80	138	42.4	105	80	148	194	23.8				

TABLE 21—(Continued)

INDEX OF ECONOMIC SECURITY OF COUPLE	NUMBER AND SPACING PLANNED					NUMBER AND SPACING PLANNED OR NUMBER PLANNED				
	Number of Couples		Children Ever Born Per 100 Couples		Per Cent Childless	Number of Couples		Children Ever Born Per 100 Couples		Per Cent Childless
	All Couples	Fertile Couples	All Couples	Fertile Couples		All Couples	Fertile Couples	All Couples	Fertile Couples	
HIGH NET WORTH (\$4,000 AND OVER)										
High	68	55	132	164	19.1	117	104	170	191	11.1
Medium	64	49	122	159	23.4	77	62	140	174	19.5
Low	22	9	50	*	59.1	22	9	50	*	59.1
MEDIUM NET WORTH (\$1,000-3,999)										
High	33	26	115	146	21.2	46	39	148	174	15.2
Medium	65	52	134	167	20.0	94	79	159	189	16.0
Low	32	9	53	*	71.9	45	22	104	214	51.1
LOW NET WORTH (UNDER \$1,000)										
High	18	17	*	*	*	24	23	171	178	4.2
Medium	53	35	96	146	34.0	89	69	154	199	22.5
Low	47	25	64	120	46.8	93	71	147	193	23.7

\* Rate or percentage not computed.





Table 22—(Continued)

MEASURE OF ECONOMIC SECURITY	NUMBER AND SPACING PLANNED				NUMBER AND SPACING PLANNED OR NUMBER PLANNED						Per Cent Childless
	Number of Couples		Children Ever Born Per 100 Couples		Per Cent Childless	Number of Couples		Children Ever Born Per 100 Couples			
	All Couples	Fertile Couples	All Couples	Fertile Couples	All Couples	Fertile Couples	All Couples	Fertile Couples			
HIGH AVERAGE ANNUAL EARNINGS											
<i>Wife's Confidence Meeting Future Expenses</i> Very or Reasonably Sure Undecided Rather or Very Doubtful	93	76	141	172	18.3	124	107	169	196	13.7	
	9	8	*	*	*	16	15	*	*	*	
	2	2	*	*	*	2	2	*	*	*	
MEDIUM AVERAGE ANNUAL EARNINGS											
Very or Reasonably Sure Undecided Rather or Very Doubtful	78	54	97	141	30.8	116	88	129	170	24.1	
	49	32	108	166	34.7	70	53	150	198	24.3	
	4	0	*	—	*	9	5	*	*	*	
LOW AVERAGE ANNUAL EARNINGS											
Very or Reasonably Sure Undecided Rather or Very Doubtful	76	51	96	143	32.9	125	100	142	178	20.0	
	76	47	87	140	38.2	116	87	145	193	25.0	
	15	7	*	*	*	29	21	148	205	27.6	

\* Rate or percentage not computed.

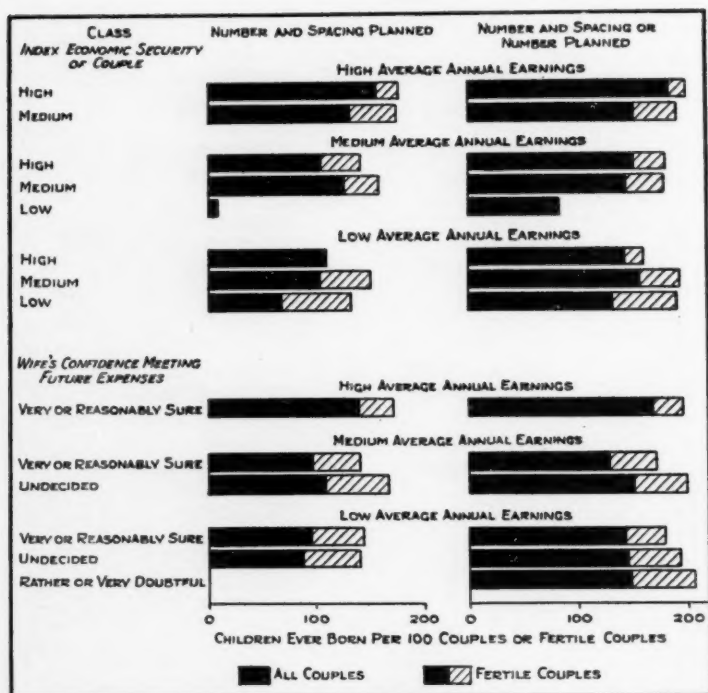


Fig. 27. Fertility rates by index of economic security and wife's confidence in meeting future expenses, among "all couples" and "fertile couples" classified as "number and spacing planned" and as "planned families" and of given class with respect to husband's average annual earnings since marriage (see Table 22).

In view of the direct relation of fertility to economic security among "number and spacing planned" couples, it is of interest to consider briefly the relation of economic security to other characteristics of these couples. Appendices IV and V present distributions by age, employment history, occupation and education of the wife and husband, for number and spacing planned couples of "high," "medium," and "low" index of economic security. These distributions indicate in general that a lowering of index of economic security is associated with a slight within the "excess fertility" group tends to persist after income is held constant, the strength of this relation is diminished.

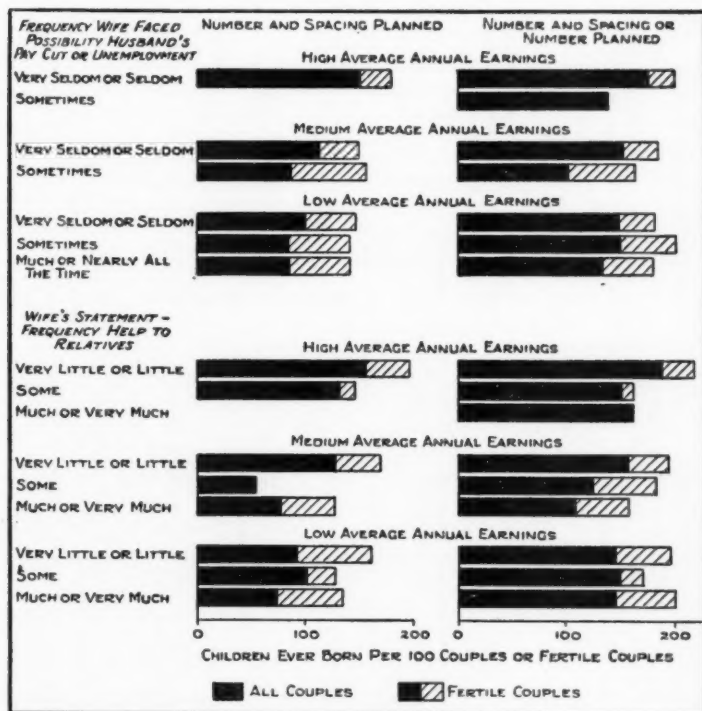


Fig. 28. Fertility rates by statements of wives on frequency of facing possibility of husband's pay cut or unemployment and on financial help to relatives, among "all couples" and "fertile couples" classified as "number and spacing planned" and as "planned families" and of given class with respect to husband's average annual earnings since marriage (see Table 23).

lowering of average age of wife and husband,<sup>20</sup> an increase in proportion of husbands reporting unemployment after marriage

<sup>20</sup> It may be thought that since the measure of fertility is total number of children ever born, the slight decline in average age with decreasing economic security would help to account for the direct relation of fertility to economic security. However, although fertility is directly related to age among the "number and spacing planned" couples of "high" index of economic security (Appendix VI) the inverse relation of fertility to age is found in the total "number and spacing planned" groups and also in the total Study. This arises from the restriction of the Study to couples of virtually equal duration of marriage. See Whelpton, P. K., and Kiser, Clyde V.: *Social and Psychological Factors Affecting Fertility. V. The Sampling Plan, Selection, and the Representativeness of Couples in the Inflated Sample. The Milbank Memorial Fund Quarterly*, January, 1946, xxiv, No. 1, pp. 87-90 (Reprint pp. 201-204).

Table 23. Fertility rates for all couples and fertile couples, and percentages childless, by frequency wife faced possibility of husband's pay cut or unemployment, by husband's average annual earnings since marriage, and by wife's statement regarding frequency of financial help to relatives within groupings by husband's earnings. Data given for "number and spacing planned" and for "number and spacing or number planned" groups.

MEASURE OF ECONOMIC SECURITY	NUMBER AND SPACING PLANNED						NUMBER AND SPACING PLANNED OR NUMBER PLANNED									
	Number of Couples			Children Ever Born Per 100 Couples			Per Cent Childless			Number of Couples			Children Ever Born Per 100 Couples			Per Cent Childless
	All Couples	Fertile Couples	Couples	All Couples	Fertile Couples	Couples	All Couples	Fertile Couples	Couples	All Couples	Fertile Couples	Couples				
HIGH AVERAGE ANNUAL EARNINGS (\$2,400 AND OVER)																
<i>Frequency Wife Faced Possibility Husband's Pay Cut or Unemployment</i>	90	76		150	178		15.6			121	107		177	200	11.6	
	14	10		*	*		*			21	17		138	*	19.0	
	0	0		*	*		*			0	0		*	*	*	
MEDIUM AVERAGE ANNUAL EARNINGS (\$1,600-2,399)																
<i>Very Seldom or Seldom Sometimes Much or Nearly All the Time</i>	87	66		113	148		24.1			141	116		152	185	17.7	
	36	20		86	155		44.4			43	27		102	163	37.2	
	8	0		*	*		*			11	3		*	*	*	
LOW AVERAGE ANNUAL EARNINGS (UNDER \$1,600)																
<i>Very Seldom or Seldom Sometimes Much or Nearly All the Time</i>	58	39		98	146		32.8			102	83		147	181	18.6	
	68	41		84	139		39.7			106	79		148	199	25.5	
	41	25		85	140		39.0			62	46		132	178	25.8	

Table 23—(Continued)

MEASURE OF ECONOMIC SECURITY	NUMBER AND SPACING PLANNED				NUMBER AND SPACING PLANNED OR NUMBER PLANNED						Per Cent Childless
	Number of Couples		Children Ever Born Per 100 Couples		Per Cent Childless		Number of Couples		Children Ever Born Per 100 Couples		
	All Couples	Fertile Couples	All Couples	Fertile Couples	All Couples	Fertile Couples	All Couples	Fertile Couples			
HIGH AVERAGE ANNUAL EARNINGS											
<i>Wife's Statement Frequency Financial Help to Relatives</i> Very Little or Little Some Much or Very Much.	53	42	155	195	20.8	78	186	216	14.1		
	32	29	131	145	9.4	41	149	161	7.3		
	19	15	*	*	*	23	161	*	17.4		
MEDIUM AVERAGE ANNUAL EARNINGS											
Very Little or Little Some Much or Very Much	69	52	126	167	24.6	103	156	192	18.4		
	23	10	52	*	56.5	40	123	181	32.5		
	39	24	77	125	38.5	52	106	157	32.7		
LOW AVERAGE ANNUAL EARNINGS											
Very Little or Little Some Much or Very Much	80	46	91	159	42.5	130	143	194	26.2		
	48	38	100	126	20.8	75	147	169	13.3		
	39	21	72	133	46.2	65	143	196	27.7		

\* Rate or percentage not computed.

and an increase in duration of such unemployment, an increase in proportion of wives who worked after marriage and an increase in duration of gainful employment, a lowering of occupational class of husbands and of gainfully employed wives, and a lowering of educational attainment of both wife and husband.

It will be noted from Appendix VI that the tendency for fertility rates to be highest among couples of "high" economic security and lowest for those of "low" economic security is fairly consistent within the given subdivisions by age, employment history, and education of the wife and husband.

Among couples of "high" index of economic security, fertility is directly associated with age and educational attainment of the wife and husband, and inversely associated with duration of gainful employment of the wife after marriage. Among couples of "medium" and "low" index of economic security, fertility is inversely associated with age of wife and husband, with duration of gainful employment of the wife after marriage, and to a limited extent with educational attainment of the wife. It should be noted, however, that among couples of "medium" index of economic security there is little or no difference between fertility rates for the two classes below the college level, and this holds for education of the wife and the husband. However, whereas the college wives are less fertile than the non-college wives, the college husbands are somewhat more fertile than non-college husbands within the group of "medium" index of economic security. By occupation, the chief point of interest is the relatively low fertility rate of the clerical workers. This holds true in each of the three subdivisions by economic security, but the smallest fertility rate shown in Appendix VI is the one for clerical workers of "low" economic security. It should be emphasized, however, that this and most of the other rates in Appendix VI and Tables 21-23 are subject to high sampling error.

Finally, the question may be raised as to whether the direct relation of fertility to economic security persists in the "number

and spacing planned" group and among the total group of "planned families" when the analysis is restricted not only to given socio-economic status groups but also to fertile couples.

In this connection it should be noted first of all that within the "number and spacing planned" group the proportion childless is not only inversely associated with economic security but also (to a less extent) with socio-economic status. Thus the proportion childless is about 17 per cent for those reporting "high" husbands' earnings (\$2,400 and over), 34 per cent for those in the "medium" (\$1,600-2,399) category, and 37 per cent for those in the "low" (under \$1,600) group. Among all "planned families," however, the proportions are 13, 25, and 23 for the three income groups respectively.<sup>21</sup>

As shown in Figure 29 and Tables 21-23, among "number and spacing planned" couples and all "planned families" the increase of childlessness with lowering of economic security tends to persist within groups of specific index of socio-economic status, net worth, and husband's average annual earnings.<sup>22</sup> However, among "number and spacing planned" couples of *medium* socio-economic status by each of the three measures

<sup>21</sup> The chi square of the distribution (with two degrees of freedom) indicates that departure from uniformity in proportion childless by income is significant at the 5 per cent level for the "number of spacing planned" couples, but not for "all planned families." In contrast, significance at the 1 per cent level is found in each case in a corresponding distribution (with two degrees of freedom) by index of economic security of the couple. However, within both fertility-planning groups the difference in proportion childless is significant at the 1 per cent level when couples of "high" and "low" income are compared, and at the 5 per cent level when couples of "high" and "medium" income are compared. The numbers of cases (n) in the uninflated sample are 54, 74, and 92 for the "number and spacing planned" couples of "high," "medium," and "low" incomes, respectively. The respective numbers are 77, 110, and 149 for "all planned families."

<sup>22</sup> Owing to small numbers in the cross-classification of the uninflated sample by index of economic security and given measures of socio-economic status, many of the interclass differences in proportions childless fail to test out as significant despite the rather marked consistency of increasing incidence of childlessness with lowering of economic security within groups of given socio-economic status. Thus among "number and spacing planned" couples of either "high" or "low" income status (Table 23) none of the observed differences in proportion childless by index of economic security is significant at the 5 per cent level. However, the proportion childless among couples of "low" index of security and income is "very significantly" higher (1 per cent level) than that for couples of "high" security and income. It is "significantly" higher (5 per cent level) than that for couples of "medium" index of security and income. All above statements except the last also hold for "all planned families."



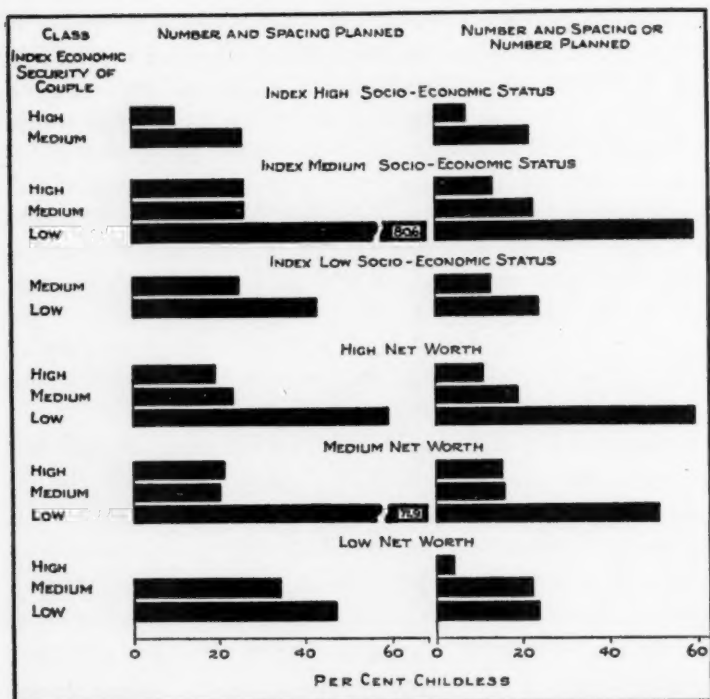


Fig. 29. Per cent childless by index of economic security among "number and spacing planned" couples and all "planned families" of given class with respect to index of socio-economic status and net worth (see Table 21).

mentioned, the chief feature of the inverse relation of childlessness to *index* of economic security is the conspicuously high proportion of childlessness among couples of "low" economic security.

For results on the question mentioned, attention is called to the top section of Figure 26. In this instance, despite the increase in childlessness with lowering of economic security, the direct relation of fertility to index of economic security persists among fertile couples within groups of both "high" and "low" index in socio-economic status (compare total lengths of bars). This holds true for both "number and spacing planned" couples and for "planned families" combined. However, in each of the

above-mentioned cases, the differences are slight and the comparisons are restricted to two rates. Furthermore, among all "planned families" of "medium" socio-economic status the direct relation of fertility to economic security arises altogether from the increase in childlessness with decrease in economic security. When the childless couples are included, the fertility rates are 149, 138, and 73 for the "high," "medium," and "low" subdivisions by index of economic security. When the analysis is restricted to fertile couples the order is reversed and the fertility rates are 172, 178, and 180, respectively.

In general, the conclusion to be drawn from Figures 26-28 is that little is left of the direct relation of fertility to economic security after the data are restricted to *fertile* couples of given socio-economic status, even within the "number and spacing planned" group. Within this group this type of relation actually is the one most frequently found in the comparisons available but in most instances the differences between the rates are slight. This again indicates the major importance of childlessness in the relationships previously described.

#### SUMMARY

Data relating to 1,444 "relatively fecund" couples in the Indianapolis Study are used for testing the hypothesis: "The greater the feeling of economic insecurity, the higher the proportion of couples practicing contraception effectively and the smaller the planned families."

The criteria of economic security available for the analysis are interviewers' ratings of couples with respect to economic security, and self-ratings of wives and husbands on confidence in meeting future expenses, frequency faced possibility of husbands' pay cut or unemployment, extent discouraged from having children or more children by economic insecurity, financial help to and from relatives, and extent of "special expenses" arising from illness, accidents, etc. since marriage. In addition, an index of economic security was constructed on the basis of all the above items except "special expenses."

The first part of the hypothesis is not borne out by the data. Among the couples studied, success in fertility planning is directly associated with economic security but this relation virtually disappears when socio-economic status is held constant. The second part of the hypothesis is supported by the data. The size of "planned families" and particularly the size of "number and spacing planned" families is directly associated with economic security regardless of differences in socio-economic status. There is a particularly strong tendency for childlessness to be associated with economic insecurity among "number and spacing planned" families. This accounts for much of the direct relation of fertility to economic security among these families. It accounts for virtually all of this type of relation among the total group of "planned families" in the Indianapolis Study.

## APPENDIX I

### CONSTRUCTION OF SUMMARY INDICES OF ECONOMIC SECURITY

The indices of economic security computed for each wife, husband, and couple in the Study are simply the average or summary ratings for the following items: interviewer's rating of the wife and husband with respect to feeling of economic security, self-ratings of wives and husbands on extent to which economic security discouraged the couple from having children or more children, degree of confidence in ability to meet future expenses, frequency faced with possibility that husband would have his pay cut or lose his job, frequency of financial help to relatives and amount of financial help that could be expected from relatives in emergencies.<sup>1</sup>

Mechanically, the Index of Economic Security of the couples was

<sup>1</sup> After some experimentation it was decided to omit from the index the item concerning extent of special expenses that had put a strain on the family pocketbook. Like the two items regarding help to and from relatives, this item is correlated only slightly with the remaining items relating to economic security. In addition, there are indications that replies were influenced to an unusual degree by number of children and are not very indicative of actual feeling of economic security. This is perhaps not surprising when it is considered that children themselves are sources of special expenses not only at delivery but also because of accidents and illness.

derived simply by adding the combined twelve scores or ratings of the husbands and wives on the six items. As already noted, there were five possible replies to each question considered. The coding plans for the present and other hypotheses provided for using the code numbers themselves as "scores" for the index. The code numbers were "ordered" in the direction desired for this purpose and some effort was made to have the code numbers equidistant for equidistant categories. For the hypothesis on economic security the scores assigned to the five-point self-ratings are 1-3-5-7-9 and the direction is from assumed economic insecurity to economic security<sup>2</sup> (see Appendix II). In the case of the interviewer's ratings there are two possible scores for each of the five possible ratings and the one used is determined by the interviewer's "degree of certainty" about the rating given to each spouse.<sup>3</sup> This is illustrated in Appendix II.

With the system used, the sum of the scores for any couple might be anything from 10 to 108. The actual range is from 22 to 102. Although the total original scores for either spouse alone could range from only 5 to 54, the total in each case was doubled in order to have the indices of economic security of the wife, husband, and couple on comparable scales. The actual ranges of the doubled total scores are from 14 to 108 for the wife and from 18 to 108 for the husband.

<sup>2</sup> This order was chosen in conformity with the decision to have code numbers relating to items pertinent to each hypothesis run in the direction of the expected variations in planned fertility (i.e., low feeling of economic security—low fertility—low code number). This plan was followed in order to make it possible to combine the scores for items under different hypotheses.

<sup>3</sup> The possible "degrees of certainty," one of which was checked in connection with each rating, were: very certain, fairly certain, doubtful, fairly uncertain, and very uncertain. It should be noted, however, that for the 1,444 couples in the inflated sample the interviewer's ratings on economic security were checked as "very uncertain" or "fairly uncertain" for only one wife and nine husbands. Thus, most of the interviewer's ratings are scored 0-2-4-7-9 for purposes of the index.

## APPENDIX II

Scores for interviewer's ratings and self-ratings used in the construction of the index of economic security.<sup>1</sup>

SCORE		Interviewer's Rating of Each Spouse on Economic Security
By Interviewer's Certainty of Rating		
"Very Certain", "Fairly Certain", and "Doubtful"	"Very Uncertain" and "Fairly Uncertain"	
0	1	Is Very Worried About Economic Future
2	3	Has Doubts Frequently About Economic Future
4	5	Feels Fairly Secure Economically
7	6	Has Few Qualms About Economic Future
9	8	Feels Perfectly Secure Economically

SCORE	Self-Rating of Each Spouse on Five Questions				
	Confidence Meeting Future Expenses	Frequency Faced Possibility of Husband's Pay Cut or Unemployment	Larger Family Discouraged by Economic Insecurity	Frequency Financial Help to Relatives	Amount Financial Help Could Expect from Relatives
1	Very Doubtful	Nearly All the Time	Very Much	Very Much	Definitely None
3	Rather Doubtful	Much of the Time	Much	Much	Probably None
5	Undecided	Sometimes	Some	Some	Little
7	Reasonably Sure	Seldom	Little	Little	Fair Amount
9	Very Sure	Very Seldom	Very Little or Not at All	Very Little	Large Amount

<sup>1</sup>The sum of the scores for the wife and husband on the six items is the summary score of economic security of the couple. The sum of the scores doubled for either spouse is the summary score of economic security of either spouse considered separately. In order to have all persons scored on all six items, the few cases of "unknowns" were scored on the basis of the average known scores.

# APPENDIX III

Percentage distribution of wives and husbands according to ratings on various measures of economic security. (Given for totals and for each fertility-planning group.)

MEASURE OF ECONOMIC SECURITY	WIFE					HUSBAND				
	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
Number Couples (Bases for Percentages)	1,444	403	205	454	382	1,444	403	205	454	382
<i>Interviewer's Rating</i>										
TOTAL (Per Cent)	100.0	100.0	100.0	100.1	100.0	100.0	99.9	100.0	99.9	100.0
Feels Perfectly Secure	5.3	8.2	10.7	2.9	2.1	5.6	8.2	8.9	4.8	2.1
Has Few Qualms	22.3	30.8	22.0	22.5	13.4	24.3	29.5	24.3	24.9	17.9
Feels Fairly Secure	37.4	34.5	32.7	40.7	39.0	36.6	34.7	33.2	39.4	37.1
Has Doubts Frequently	30.2	25.3	28.3	31.1	35.3	28.8	22.3	27.7	27.5	37.9
Is Very Worried	4.8	1.2	6.3	2.9	10.2	4.7	5.2	5.9	3.3	5.0
<i>Self-Ratings:</i>										
<i>Extent Discouraged from Having (More) Children by Economic Insecurity*</i>										
TOTAL (Per Cent)	99.9	100.0	100.0	99.9	100.0	100.0	100.0	100.0	99.9	100.1
Very Little or Not at All	35.5	39.7	38.0	35.2	30.1	36.9	38.2	46.3	38.3	28.8
Little	16.2	14.6	17.6	16.3	17.0	17.2	16.9	9.8	16.7	22.3
Some	24.4	20.6	20.5	26.2	28.3	23.4	22.3	21.5	25.1	23.6
Much	9.3	13.2	9.8	8.1	6.5	12.5	12.2	15.1	11.9	12.0
Very Much	14.5	11.9	14.1	14.1	18.1	10.0	10.4	7.3	7.9	13.4

APPENDIX III—(Continued)

MEASURE OF ECONOMIC SECURITY	WIFE					HUSBAND				
	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<i>Confidence Meeting Future Expenses*</i>										
TOTAL (Per Cent)	100.0	100.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.1
Very Sure	3.3	5.5	1.5	2.6	2.9	7.7	8.4	11.7	5.7	7.1
Reasonably Sure	55.1	56.1	56.1	61.5	45.8	56.1	65.8	47.8	58.6	47.4
Undecided	32.7	33.3	33.2	26.9	38.7	25.2	18.6	26.8	24.9	31.7
Rather Doubtful	6.4	3.5	6.8	6.6	9.2	7.9	4.7	8.8	8.4	10.2
Very Doubtful	2.5	1.7	2.4	2.4	3.4	3.1	2.5	4.9	2.4	3.7
<i>Frequency Faced Possibility of Husband's Pay Cut or Unemployment*</i>										
TOTAL (Per Cent)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Very Seldom	32.7	34.9	35.6	34.6	26.3	30.1	36.2	33.2	28.4	24.1
Seldom	23.4	23.6	27.3	20.9	24.2	25.8	22.3	24.9	27.8	27.5
Some of the Time	31.0	29.3	25.4	32.2	34.5	31.5	32.3	27.8	33.0	30.9
Much of the Time	10.7	9.2	11.7	10.1	12.4	9.6	6.5	6.8	9.9	14.1
Nearly All of the Time	2.2	3.0	0.0	2.2	2.6	3.0	2.7	7.3	0.9	3.4
<i>Frequency Financial Help to Relatives*</i>										
TOTAL (Per Cent)	100.0	100.0	100.0	99.9	99.9	100.0	100.1	100.0	100.0	100.0
Very Little	41.5	36.2	39.5	40.5	49.2	34.9	31.3	35.6	36.1	36.9
Little	15.9	14.1	13.7	21.1	12.8	18.8	20.1	18.0	18.3	18.6
Some	25.5	25.6	25.9	24.4	26.4	31.4	31.3	29.8	30.4	33.5
Much	8.4	11.2	10.2	7.3	6.0	8.3	11.2	6.9	9.5	5.2
Very Much	8.7	12.9	10.7	6.6	5.5	6.6	6.2	10.7	5.7	5.8



APPENDIX III—(Continued)

MEASURE OF ECONOMIC SECURITY	WIFE					HUSBAND				
	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility	Total	No. and Spacing Planned	Number Planned	Quasi-Planned	Excess Fertility
<i>Amount Financial Help Could Expect from Relatives*</i>										
TOTAL (Per Cent)	100.0	99.9	99.9	99.9	100.0	99.9	99.9	100.1	99.9	100.0
Large Amount	2.6	3.2	1.9	3.3	1.6	1.7	2.2	4.9	0.7	0.8
Fair Amount	27.6	27.5	33.2	28.6	23.6	28.6	36.2	32.7	23.8	24.1
Little	33.6	34.2	31.7	30.6	37.4	34.8	28.5	32.7	39.4	37.2
Probably None	21.9	19.9	19.0	24.4	22.5	19.8	17.6	17.6	22.9	19.6
Definitely None	14.3	15.1	14.1	13.0	14.9	15.0	15.4	12.2	13.2	18.3
<i>Extent of Special Expenses Since Marriage*</i>										
TOTAL (Per Cent)	100.0	100.1	100.0	100.1	99.9	100.0	100.1	100.0	100.0	100.0
Very Few	23.9	29.8	13.2	24.7	22.5	29.2	40.0	27.8	25.3	23.0
Few	22.3	21.6	20.0	26.9	18.8	19.9	17.4	17.6	20.5	23.3
Some	32.4	33.5	40.0	28.2	32.2	33.0	29.8	30.7	35.5	34.5
Many	10.1	6.0	11.7	11.9	11.5	9.2	7.2	12.2	12.3	6.0
A Great Many	11.3	9.2	15.1	8.4	14.9	8.7	5.7	11.7	6.4	13.1
<i>Index of Economic Security of Each Spouse</i>										
TOTAL (Per Cent)	100.0	100.0	100.0	99.9	100.0	100.1	100.0	100.1	99.9	100.0
90+ (High)	8.5	10.7	12.2	8.4	4.5	9.1	9.9	15.6	8.1	6.0
80-89	23.2	24.1	24.9	23.3	21.2	22.6	29.0	20.0	23.1	16.5
70-79	19.0	14.6	17.6	21.8	20.9	17.7	16.4	14.6	18.7	19.4
60-69	19.0	22.3	18.5	16.5	18.8	23.8	21.3	25.4	25.1	24.1
50-59	17.4	18.1	11.7	18.7	18.1	15.0	12.7	9.8	15.4	19.6
40-49	7.7	5.0	8.3	7.7	10.2	6.8	7.2	8.8	6.5	6.8
Under 40 (Low)	5.2	5.2	6.8	3.5	6.3	5.1	3.5	5.9	4.0	7.6

\* The possible replies were arranged in the opposite order in the questionnaire.

## APPENDIX IV

Percentage distribution by age, gainful employment since marriage, occupation, and education of the wife, for couples of high, medium, and low rank on the index of economic security and classified as "number and spacing planned" or as "number and spacing or number planned." (High index = 80+; medium = 60-79; low = under 60.)

CHARACTERISTIC OF WIFE	NUMBER AND SPACING PLANNED				NUMBER AND SPACING PLANNED OR NUMBER PLANNED			
	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security		High Index Economic Security	Medium Index Economic Security	Low Index Economic Security	
Number Couples (Bases for Percentages)	119	183	101		187	261	160	
Age of Wife								
TOTAL (Per Cent)	100.0	100.0	99.9		100.0	100.1	100.0	
Under 32 (Mainly 30-31)	10.1	15.8	26.7		13.9	25.7	41.9	
32-34	46.2	38.3	35.6		40.6	37.9	31.8	
35-36	10.1	21.3	11.9		18.2	16.9	10.6	
37-39	26.9	19.1	16.8		23.0	14.6	10.6	
40-44	6.7	5.5	8.9		4.3	5.0	5.6	
Years Wife Gainfully Employed After Marriage								
TOTAL (Per Cent)	99.9	100.0	100.0		100.0	100.0	100.1	
Always	2.5	2.7	11.9		1.6	1.9	7.5	
Some (But Not Always) :								
9 Years or More	13.4	14.2	23.8		9.6	13.8	13.8	
5-8.9 Years	12.6	24.6	29.7		9.1	21.1	22.5	
3-4.9 "	10.9	14.8	7.9		12.8	13.0	6.9	
1-2.9 "	17.6	14.2	12.9		20.3	15.3	16.9	
1-11.9 Months	8.4	10.9	5.9		8.0	11.5	10.6	
Did Not Work	34.5	18.6	7.9		38.5	23.4	16.9	

APPENDIX IV—(Continued)

CHARACTERISTIC OF WIFE	NUMBER AND SPACING PLANNED				NUMBER AND SPACING PLANNED OR NUMBER PLANNED			
	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security		High Index Economic Security	Medium Index Economic Security	Low Index Economic Security	
<i>Wife's Longest Occupation After Marriage</i>								
TOTAL (Per Cent)	100.0	100.0	100.0		100.0	100.0	100.2	
Professional	10.9	13.1	3.0		9.1	11.1	3.8	
Proprietary	1.7	1.1	0.0		1.1	1.5	0.0	
Clerical	39.5	56.3	52.5		39.0	46.0	44.4	
Skilled (Craftsmen)	0.0	0.0	6.9		0.0	0.0	4.4	
Semi-Skilled (Operatives)	8.4	8.7	18.8		8.6	12.6	21.3	
Service (Incl. Domestic)	5.0	2.2	10.9		3.7	5.4	9.4	
Did Not Work	34.3	18.6	7.9		38.5	23.4	16.9	
<i>Education of Wife</i>								
TOTAL (Per Cent)	100.0	99.9	100.0		100.1	99.9	100.1	
College 4 or More	25.2	8.7	3.0		19.8	8.0	1.9	
College 1-3	10.1	15.8	11.9		15.0	13.0	8.8	
High School 4	39.3	39.9	35.6		34.8	36.4	30.0	
High School 1-3	17.6	26.2	26.7		20.3	31.8	34.4	
Grade School 8	7.5	9.3	22.8		10.2	10.7	24.4	

## APPENDIX V

Percentage distribution by age, unemployment since marriage, occupation, and education of the husband, for couples of high, medium, and low rank on the index of economic security and classified as "number and spacing planned" or as "number and spacing or number planned." (High index = 80+; medium = 60-79; low = under 60.)

CHARACTERISTIC OF HUSBAND	NUMBER AND SPACING PLANNED			NUMBER AND SPACING PLANNED OR NUMBER PLANNED		
	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security
Number Couples (Bases for Percentages)	119	183	101	187	261	160
<i>Age of Husband</i>						
TOTAL (Per Cent)	100.1	99.9	100.0	100.0	100.0	100.1
Under 35 (Mainly 30-34)	20.2	22.4	28.7	24.1	29.9	39.4
35-39	51.3	54.6	52.5	52.9	49.0	45.0
40-44	20.2	20.2	12.9	16.0	18.4	11.9
45-49	8.4	2.7	5.9	7.0	2.7	3.8
<i>Months Husband Unemployed Since Marriage</i>						
TOTAL (Per Cent)	100.0	99.9	100.0	100.0	100.0	100.1
12 or More	1.7	9.8	16.8	1.1	10.0	16.9
4-11.9	5.9	10.9	12.9	5.3	13.4	18.8
2-3.9	5.0	4.9	7.9	4.3	8.0	13.1
Under 2 (Or None)	87.4	74.3	62.4	89.3	68.6	51.3

APPENDIX V—(Continued)

CHARACTERISTIC OF HUSBAND	NUMBER AND SPACING PLANNED			NUMBER AND SPACING PLANNED OR NUMBER PLANNED		
	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security	High Index Economic Security	Medium Index Economic Security	Low Index Economic Security
<i>Husband's Longest Occupation Since Marriage</i>						
TOTAL (Per Cent)	99.9	100.0	99.9	100.0	100.1	100.1
Professional	29.4	13.1	5.9	21.9	13.4	3.8
Proprietary	23.5	15.8	8.9	26.7	15.7	8.8
Clerical	28.6	29.0	23.8	33.2	26.1	18.8
Skilled (Craftsmen)	9.2	24.0	26.7	9.1	21.1	26.2
Semi-Skilled (Operatives)	9.2	13.7	27.7	9.1	18.8	36.2
Unskilled Labor	0.0	0.0	6.9	0.0	0.8	4.4
Other	0.0	4.4	0.0	0.0	3.8	1.9
<i>Education of Husband</i>						
TOTAL (Per Cent)	100.0	100.0	99.9	99.9	99.9	99.9
College 4	37.0	15.8	6.9	32.6	13.4	5.6
College 1-3	12.6	22.4	7.9	12.3	18.4	8.1
High School 4	19.3	25.1	17.8	23.1	24.1	18.1
High School 1-3	18.5	21.9	28.7	17.1	26.4	35.6
Grade School 8	12.6	14.8	36.6	12.8	17.2	30.0
Under Grade School 8*	0.0	0.0	2.0	0.0	0.4	2.5

\* Two husbands in the "number and spacing planned" group, and three in the "number planned" group are in the Study although they technically failed to complete the usual eight grades of elementary school.

## APPENDIX VI

Fertility rates of "number and spacing planned" couples by index of economic security of the couple and other characteristics of the wife and husband.

CHARACTERISTIC OF WIFE OR HUSBAND	NUMBER COUPLES BY INDEX OF ECONOMIC SECURITY			CHILDREN EVER BORN PER 100 COUPLES BY INDEX OF ECONOMIC SECURITY		
	High	Medium	Low	High	Medium	Low
<b>TOTAL</b>	119	183	101	130	118	57
<i>Age of Wife</i>						
Under 35	67	99	63	116	136	70
35-44	52	84	38	148	96	37
<i>Age of Husband</i>						
Under 35	24	41	29	100	124	83
35-39	61	100	53	134	127	53
40 and Over	34	42	19	144	90	*
<i>Years Wife Worked After Marriage</i>						
7 and Over	21	49	47	71	59	84
3-6.9	26	54	27	185	128	70
1 Month-2.9 Years	31	46	19	119	152	*
Did Not Work	41	34	8	166	141	*
<i>Husband's Longest Occupation Since Marriage</i>						
Professional	35	24	6	143	117	*
Proprietary	28	29	9	171	124	*
Clerical	34	53	24	91	94	29
Skilled or Semiskilled	22	69	55	118	141	71
Other	0	8	7	*	*	*
<i>Education of Wife</i>						
College	42	45	15	164	98	*
High School 4	47	73	36	123	125	53
Under High School 4	30	65	50	93	125	70
<i>Education of Husband</i>						
College	59	70	15	144	127	*
High School 4	23	46	18	148	113	*
Under High School 4	37	67	68	97	112	66

\* Rate not computed.

# ANNOTATIONS

## THE DISTRIBUTION OF INCUBATION PERIODS OF INFECTIOUS DISEASE<sup>1</sup>

THE study of incubation periods of specific infectious diseases is of interest both to the epidemiologist and to the clinician. The length of incubation periods helps to distinguish the types of infection present and also the simultaneity or successive infectiveness of a particular epidemic in a group of people.

The incubation period of a specific infectious disease exhibits considerable variation. These variations have been attributed to the strain and size of the inoculum and to the route of inoculation. Certain factors characteristic of the host are thought to contribute to the variation also, such as age, natural or acquired resistance, and allergic states. Variation in the incubation period persists even when holding these factors as constant as possible.

The purpose of Sartwell's paper was to show that the incubation periods of various infectious diseases formed a consistent pattern. He defined an incubation period as "the time required for multiplication of the parasitic organism within the host organism up to the threshold point at which the parasite population is large enough to produce symptoms in the host." The incubation period was distinguished from the "carrier state" in which the agent remains on the mucous membranes for a length of time before some circumstance leads to proliferation and invasion of the host tissues. To show the consistent pattern of incubation periods Sartwell used three types of observations: known single simultaneous exposure epidemics; known

<sup>1</sup> Sartwell, Philip E.: The Distribution of Incubation Periods of Infectious Disease. *The American Journal of Hygiene*, May, 1950, 51: No. 3, pp. 310-318.



but not simultaneous exposure epidemics; and unknown exposure outbreaks which, by studying the epidemic curve, revealed whether a single simultaneous exposure was responsible or not.

Most frequency distributions of incubation periods bore a resemblance to the normal curve when plotted on normal probability paper. It was found, however, that "a more nearly linear plot was almost always obtained if the logarithm of the time of incubation, instead of the incubation period itself, was used in graphing the curves." In plotting the cumulative percentages against log time on normal probability paper the straight line fitted by inspection was used to estimate the median. This "estimated median" was taken at the point where the straight line intercepted the 50 per cent frequency. Determining the median in this manner was felt to be a method less affected by chance than calculating the median value in the ordinary manner. A statistic termed the "dispersion factor" (the antilog of the log standard deviation) was used because it was felt to be a more reliable measure of dispersion in a skewed distribution than the arithmetic standard deviation. Also, the "dispersion factor" showed "the degree of variation in relation to the magnitude of the mean."

Sartwell used twelve infectious diseases to illustrate his method. He found that the "estimated median" of the incubation periods ranged from 2.3 hours in bacterial food poisoning (the only noninfectious disease used) to 105 days in serum hepatitis, yet the curves that resulted from plotting the frequency distributions of the incubation periods on normal probability paper all resulted in the characteristic linear plot.

In all but one of the series studied by Sartwell, the "dispersion factors" ranged from 1.14 in chickenpox to 1.58 in typhoid fever. Thus, the degree of dispersion of incubation periods was found to be related proportionately to the usual length of incubation.

The usual frequency curve of incubation time of several infectious diseases studied by Sartwell took the form of a logarithmic normal curve. This appeared to be true both in diseases having long incubation periods and those having short incubation periods.

The "dispersion factors," the antilogs of the log standard deviations, appeared to be independent of the median lengths of the incubation periods. The degree of dispersion was proportionate to the usual length of incubation.

Sartwell, using controlled studies where observational errors were at a minimum and noncontrolled studies where errors in estimation were considerable, found that the dispersion factors were approximately the same size in both. He concluded that "observational errors do not materially contribute to the variation of incubation periods but that such variation is an innate biological characteristic."

JANE E. COULTER

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#### NUTRITION IN OPHTHALMOLOGY<sup>1</sup>

THE author has surveyed the literature on nutrition in ophthalmology between 1922 and 1949 in the main. The three chapters have anatomical division headings with sub-headings indicating the various vitamin deficiency diseases and the eye, specific ocular clinical diseases and eye disorders in possible relation to faulty metabolism.

The survey brings together adequately in one monograph the present knowledge of the role of nutritional deficiencies in the causation of functional and anatomical ocular symptomatology and, the author with due consideration indicates the presumptive, the assumptive, and the dubious in the various claims for clinical recognition and acceptance.

The monograph, although in no sense exhaustive of the subject, has value in pointing out what is presently being discussed and pointing to the failure of ophthalmologists, nutritionists, and biochemists to utilize a readily observable organ in research and the paucity of gross, let alone the intimate, knowledge of metabolic disorders of the eye.

The bulk of basic, even clinical, information in the field has

<sup>1</sup> Stern, John J., M.D.: NUTRITION IN OPHTHALMOLOGY. Nutrition Monograph Series #1. June, 1950. New York, *The National Vitamin Foundation, Inc.* 130 p. \$1.50.

evidently been derived mostly from the work of internists whereas contributions from the ranks of ophthalmology is evidently meager.

EDWARD BELLAMY GRESSER, M.D.

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### CANCER MORTALITY TRENDS<sup>1</sup>

DISPASSIONATE analysis of mortality from cancer is very much needed. McKinnon has presented annual age and sex specific cancer death rates for the period 1921-1947 for seven of the provinces of Canada. For one province the period was 1926-1947. The province of Prince Edward Island was excluded. According to McKinnon, "Propaganda and publicity of official, semiofficial, and voluntary organizations of national scope aimed at stimulating earlier diagnosis and treatment of cancer have been spread through all the provinces; and increased activity in any province is likely to so influence routine practice of medicine and public health in other provinces."

The provinces varied widely, however, in the development and the breadth of their programs for the control of cancer. For example, in province A there was a relatively inactive organization; on the other hand, province B initiated its program in 1929 and by 1944, complete diagnostic and treatment services and care (all tax paid) were provided for all cancer throughout the province. Between these two extremes there have been various gradations of facilities, services, and activities. McKinnon concludes that if any of the programs had been effectual in reducing cancer mortality to any significant degree, differences should be found in the trends of cancer mortality in the different provinces.

A comparison of the trends in breast-cancer mortality and for all cancer mortality in the different provinces from 1921 to 1947 revealed a similarity of pattern throughout the period. McKinnon's conclusion was "Program or no program, increase or no increase, acceleration or no acceleration, early treatment

<sup>1</sup> McKinnon, N. E.: Cancer Mortality Trends Under Different Control Programs. *Canadian Journal of Public Health*, January, 1950, 41: No. 1, pp. 7-14.

or late treatment, much money spent or little, the trends of breast-cancer mortality and of all cancer mortality show no significant differences from province to province."

A further conclusion was as follows: "The data, both in themselves and by comparison, provide further substantial evidence of the noncurability, in general, of cancer that gives remote metastases. They thus support the old contention, almost lost in recent optimistic claims, that it is the fundamental nature of the neoplasm rather than the time of treatment which determines, almost exclusively, the final outcome of treatment."

McKinnon emphasized the fact, however, that "the objectives of treatment are not limited to cure (eradication of the disease). The objectives of treatment also include the prolongation of life in those cancers that are apt to kill by local extension before metastases develop and mental and physical relief in these as well as in others. Further, in the individual case, it is impossible, from the practical standpoint, to differentiate with certainty between the remotely metastasizing cancer and the cancer that does not yield remote metastases; and the individual patient may be the exception to the rule even in cancers which usually give remote metastases. Thus the earliest and best treatment possible is not only justified but required."

In a subsequent analysis,<sup>2</sup> "Cancer Mortality Trends in Different Countries," McKinnon examined the trends in the death rates from breast cancer among females in England and Wales, Ontario, Canada, and Massachusetts during the past twenty to twenty-five years. The mortality showed no decline in any age group in any one of the three areas. He concluded that "the maintenance of levels of breast-cancer mortality in three different countries, under three different book-keeping auspices, is very strong confirmatory evidence of the lack of any real decline in breast-cancer mortality" in any one of the three.

The all-cancer mortality rates in Ontario showed no decline in any age group but both the England and Wales rates to 1939, and the Massachusetts rates showed a decline in practically all age groups under old age. In McKinnon's judgment, "their

<sup>2</sup> McKinnon, N. E.: Cancer Mortality Trends in Different Countries. *Canadian Journal of Public Health*, June, 1950, 41: No. 6, pp. 230-240.

variability in extent and course from age group to age group and in time and type of onset, and, too, in the lack of any consistent acceleration in the rate of decline, suggested paper changes rather than real declines."

Again, the author emphasizes the point that the claims with respect to present-day capacity to "control" cancer mortality are too broad.

JEAN DOWNES

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### THE NUTRITIONAL IMPROVEMENT OF LIFE<sup>1</sup>

THE first half of the 20th century has been marked by tremendous increase in research in all of the biological sciences and has opened new horizons for the improvement of life. The science of nutrition, although in its infancy at the beginning of the century, has grown to sturdy adulthood during this period.

Dr. Sherman's book, *THE NUTRITIONAL IMPROVEMENT OF LIFE* chronicles this growth and outlines the successive steps by which we have arrived at the "concept of the potentialities of the science of nutrition to improve the hitherto accepted norms of human life history."

Probably no one is better fitted to chronicle this development than Dr. Sherman, whose fifty years in nutrition research have contributed to many of the achievements he records. In his lifetime he has seen the science of nutrition develop "through the stages of opinion into the realm of established fact and principles."

The book is an exposition of Dr. Sherman's credo that "nutrition is everyone's adventure" and that the human implications of improved nutrition include higher health throughout life, and an extension of "life with those extra years added to the prime of life."

The book is of value to every student of nutrition because of

<sup>1</sup> Sherman, Henry C.: *THE NUTRITIONAL IMPROVEMENT OF LIFE*. Columbia University Press, New York, 1950, 270 pp.

the concise, historical summary and the exposition of the possibilities of future development.

A valuable selected bibliography is appended.

NORMAN JOLLIFFE, M.D.

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### PUBLIC HEALTH AND DEMOGRAPHY IN THE FAR EAST<sup>1</sup>

THE reviewer finds it an unusually congenial task to comment on this report. Seldom has he found himself in such complete accord with what he regards as the more significant views expressed by a writer (writers) in a field with which he is familiar. In addition, he considers an understanding of the views set forth here as of first importance not only to the welfare of the more than half of mankind that still lives in the pre-industrial era but to the peace of the world and the welfare of all mankind. It is a pleasure, then, to try to present a few of the leading ideas in this report to the reader who may not have time to read the entire report. But since the report is well organized, and drastically pruned and with only a few exceptions, chiefly to be found in the chapter on Japan, is written in plain straightforward English it is to be hoped that most readers will drop this review and secure the report itself. It is so full of meat that the reviewer is unable to do it justice.

"The survey (on which this report was based) was made primarily in the interests of The Rockefeller Foundation and the full report submitted to the Foundation included recommendations for its consideration in connection with the policy and program of that organization." (P. 2) It was intended to serve administrative purposes rather than to lead to a publication of findings for the general reader. However, with the elimination of matters of interest only to the trustees and officers of the Foundation the remainder has been made available to the public. The Foundation is certainly to be congratulated on this decision.

<sup>1</sup> Balfour, Marshall C., Roger F. Evans, Frank W. Notestein and Irene B. Taeuber: *PUBLIC HEALTH AND DEMOGRAPHY IN THE FAR EAST*. New York, The Rockefeller Foundation, 1950.



In the reviewer's opinion the most important theme running through the report is that the problems involved in increasing the welfare of the peoples of the Far East cannot be solved merely by improvement in production. The data presented indicate clearly that the effects of a better health service and of an increase in the productivity of the economy of these Far Eastern countries on the growth of population may make any increase in the general welfare of these peoples an extremely difficult matter. Thus: "Substantial efforts [at economic development] have been made there [India and Java], but the results are more evident in the increased numbers of people than in higher levels of living and better health. . . . Most expressions of optimism concerning the problems of growth appear to be based on somewhat abstract calculations as to what might be feasible under ideal conditions. Probably population growth would not be a critical obstacle to the attainment of higher levels of living in the Far East if capital were abundant and its owners enterprising, and if the popular education, the skills, the social organization and the political stability were those of rich and technologically developed societies. But under these conditions, the demographic difficulties would never have developed." (Pp. 7-8) "Any solutions of the problems of population growth in the Far East will require simultaneous efforts to raise the levels of living for growing numbers and to reduce human fertility so that growth can be kept to the least dangerous level possible. We are not certain of the outcome, and we are distrustful of those who express certainty either of inescapable disaster or of Utopia near at hand. . . . Experience shows that reproductive behavior can be modified. [But] Neither will the difficulties disappear as an automatic by-product of the march of science." (P. 11)

In the final chapter the difficulties inherent in raising the level of living in a densely settled area where agriculture is by far the chief support of the population is again stated: "Birth rates are resistant to change and high enough to give growth even when death rates are very high. Under these circumstances, there is danger that gains in production will be largely consumed by increasing numbers and that the processes of population change will function, like the governor of a machine, to



keep the system in a stable equilibrium of poverty and ill health. It is because of this danger the Far Eastern problems of human welfare may be said to come to their sharpest focus in the problems of population change. Of these problems those of the reduction of human fertility are at once the most difficult and important." (P. 111)

Everyone would probably agree with the view of the authors that the decline in the death rates is one of the best and simplest indicators of improved welfare. But not all people realize, as the authors so clearly point out, that a decline in the death rate generally precedes by some decades the decline in the birth rate and that this means an increase in the rate of population growth in the early decades of the development of a modern economy, in fact, until such time as the birth rate begins to fall faster than the death rate. This situation raises two basic questions which must be considered if the welfare of peoples of unindustrialized and densely settled areas is to be increased: (1) Can economic production be increased faster than population will grow during the early decades of the industrial and agricultural revolutions essential to the increase in production? and (2) Is there basis for rational hope that the birth rate will decline *pari passu* with the death rate at an earlier stage in this economic revolution in the Far East than it did in that of the West? The phrasing of these questions is the reviewer's but in so stating these points he does not believe he is doing violence to the content of the report. The authors very wisely do not attempt to answer either of these questions. They point out in the chapters relating to different areas that there are important differences between them. Hence, there can be no one answer. They also make it clear that we cannot know how rapidly economic productivity can be increased in any given area, but, and this should be marked well, the potential population growth in a country like India is certainly far above the 1.5 per cent annual increase that actually took place between 1931 and 1941 and is fully as great in all other parts of the Far East. Indeed, a very modest increase in the general welfare of these peoples will certainly bring to realization an increasing portion of the very large population potential, again, until the birth rate also comes under control.

As was just said the authors do not think of the Far East as a homogeneous unit, but in the reviewer's opinion they are fully justified in proceeding on the assumption that there are enough similarities between these countries, both demographically and economically, to permit of treating the Far East as a unit in making such a general statement as the following:

"There is in the Far East a general, indeed a zealous, conviction that the path to health, wealth and power lies in technological modernization. It is much less generally realized that the attainment of these ends by means of advanced technology also requires profound changes in social and economic institutions and in deeply laid social values. Recognition of the need for such changes, and of the fact that without them population increase may be a major obstacle to success, is virtually limited to a few specialized scholars with Western contacts. Yet such recognition appears to be essential for sound action." (P. 111)

The reviewer finds it almost impossible to compress further many of the conclusions of this report he would like to quote since the authors have already done such an effective job. But he must try at the risk of inadequate coverage and even of unfair emphasis. There is great need for doing something about the population situation in the Far East but there is danger that action unless preceded by careful study may do much harm. This antithesis is considered unrealistic if it leads to a do-nothing attitude for "It is through the careful observation and testing of a wide variety of ameliorative efforts that much of the most useful knowledge is to be obtained." (P. 112) The Far East is in more need of the application of social knowledge already available than of new research. Population change in this region will best be studied: (1) by investigating the relationships between them and other aspects of a changing culture, such as those, in health, in social organization, and in economic techniques. (2) by studying the factors governing fertility in a relatively stable culture, the motives which may lead to reduced fertility in such a culture and the means suitable for this purpose under the existing conditions.

The function of outside private agencies should not be to develop action programs but to encourage "teaching, research, experiment and demonstration to increase knowledge and ulti-

mately to foster its wide dissemination. Study should be emphasized as opposed to direct ameliorative action." (P. 112) There should be concentration of study in relatively small selected areas which are believed to present typical problems.

"Finally we want to re-emphasize the importance of balanced development. Confessedly, we know much less about the nature of 'balance' than about the risks of its absence. We have seen the terrible vulnerability, when outside contacts are cut, of a population built to huge density by Western government and economic management as in Java. Such populations are exposed to the risks of disruption that complexity and specialization entail without the protection of wide margins for retrenchment and of depth in skills that usually accompanies complexity where it develops indigenously." (P. 121)

Suggestions looking towards "balanced" development are:

"a. Effort at development should be many-sided, technological, governmental, economic, social and educational in order to touch as intimately as possible the lives of the people so that adaptation to change can proceed simultaneously. (P. 121)

"b. Indigenous responsibility for constructive effort is essential. The complexity of the problems of social change will baffle human understanding for an indefinite future. A sound test of balance in the process of change is the extent to which the system is self-sustaining in terms of skills, organization and interest." (P. 121)

The last quote referring to "indigenous responsibility for constructive effort" is noted at a number of places in the body of the report and is especially emphasized in the chapter on Japan. In the opinion of the reviewer this is an extremely important point in the present conjuncture of world affairs. The Western World, as representing colonial power not yet entirely abrogated, is widely suspect throughout the Far East and any assistance Westerners may offer in studying population questions should be given in such a way that there can be no doubt of their disinterestedness. No people will be convinced of the need for population control and certainly no large proportion of the people in any nation will take personal action to control the size of their own families until they are convinced that it is to their own interest, as well as that of the nation, to do so. I fully

agree with the authors that assistance in spreading the knowledge of the facts regarding the inter-relation between population changes and other changes in the culture of peoples is the most effective contribution we can make to the solution of the population dilemma which now faces these peoples.

WARREN S. THOMPSON



